

The U.S. Army Air Forces in World War II

REFLECTIONS AND REMEMBRANCES

Veterans of the United States
Army Air Forces
Reminisce about World War II

Edited by
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and Mary Lee Jefferson

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Foreword

An anniversary gives us the opportunity to recognize the deeds of our predecessors, take pride in our heritage, show gratitude for our victories, reflect on our losses, and review the past with the benefit of the longer perspective of history. Each generation tends to see the past in terms of its own experience. History both illuminates what has lain hidden and reinforces what we know.

For its 1995 observance of the fiftieth anniversary of the end of World War II, the Air Force History and Museums Program sponsored a series of commemorative events. One, a National Day of Recognition for Veterans of the United States Army Air Forces (USAAF), held on August 7th in the Washington, D.C. area, was celebrated at three locations. First, at the Pentagon's center court, Secretary of the Air Force Sheila E. Widnall and Chief of Staff of the Air Force General Ronald R. Fogleman, praised the veterans' numberless contributions to Allied victory in the war. The Air Force Historian, Richard P. Hallion, read a congressional resolution marking the day and then Lieutenant Colonel Donald S. Lopez, USAF, retired, spoke on behalf of all World War II airmen. A flyover by vintage USAAF aircraft capped the festivities.

During the afternoon in a symposium at the National Archives and Records Administration, eleven USAAF veterans, in separate sessions covering the conflicts in Europe and Asia, reflected on their own wartime experiences of half a century ago. They spoke with clarity and authority and in remarkable detail on such topics as military preparedness, leadership, training, racial segregation, the treatment of American prisoners of war, military technology, the Allied invasion of Japan, and the use of atomic weapons. Historians Richard G. Davis and William T. Y'Blood presented overviews at the respective sessions.

That evening, the Daughters of the American Revolution gave a reception in honor of the symposium participants and opened Constitution Hall for an outstanding musical tribute, which was performed before a packed house by the United States Air Force Band.

Dr. Hallion, joined by General Bryce Poe, II, president of the Air Force Historical Foundation, hosted the symposium. Reminiscences and remarks are faithfully preserved herein.

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**National Day of Recognition for
United States Army Air Forces
Veterans of World War II**



PROCLAMATION

104th CONGRESS, 1st SESSION

Recognizing the contributions of the United States Army Air Forces to the United States victory in World War II.

IN THE SENATE OF THE UNITED STATES

July 26 (legislative day, July 10), 1995, Mr. Thurmond submitted the following resolution, which was referred to the Committee on Armed Services

RESOLUTION

Recognizing the contributions of the United States Army Air Forces to the United States victory in World War II.

Whereas in World War II, the United States Army Air Forces played a decisive role in turning the tide of war both in Europe and the Pacific.

Whereas the price for this role in victory was high, with more than fifty thousand Army Air Forces personnel killed in combat.

Whereas the strategic air campaign of the Army Air Forces in Europe during World War II successfully crippled the industrial and economic infrastructure and communications and transportation networks of Germany.

Whereas the Army Air Forces supported ground forces and gained air supremacy in the skies over the beaches of the D-Day invasion of Europe, an operation that set the stage for the downfall of the Third Reich.

Whereas in August 1942, the Army Air Forces commenced air operations that established air supremacy in the Southwest Pacific, thereby contributing significantly to victory in the battles for New Guinea and the Philippines.

Whereas the Army Air Forces supported the strategic and tactical thrusts of the Armed Forces across the central Pacific, the Aleutians, and the China-Burma-India Theater:

NOW, THEREFORE, BE IT RESOLVED, THAT THE SENATE

(1) **recognizes** the courage, sacrifice, and devotion to duty of the personnel of the United States Army Air Forces in World War II; and

(2) **recognizes** the outstanding and critical contribution of the Army Air Forces to the worldwide victory of the United States in World War II.

**National Day of Recognition for
United States Army Air Forces
Veterans of World War II**

**Remarks at Pentagon Center Court
August 7, 1995**

**The Honorable Sheila E. Widnall
Secretary of the Air Force**

Ladies and gentlemen, distinguished guests. There are seventy-eight battle streamers attached to our Service flag. Forty-two of them, more than half, were won in combat in hostile skies during World War II. Those battle campaign streamers are continuing reminders of the sacrifices of so many airmen who knew that the price of freedom was high, yet stepped forward to do their duty.

Today, we reflect on what we asked of the nearly two and a half million young men and women who joined the Army Air Forces during World War II. These were ordinary people asked to perform extraordinary tasks. They came from their homes, farms, and factories. They were asked to become pilots and bombardiers, gunners and radio operators, typists and teachers, mechanics and engineers. They were asked to put their futures on hold—to leave their loved ones, their families, their friends—and take up arms in the defense of freedom. They were asked to fly in harm's way so that future generations wouldn't have to.

In just four years of war, over places with such names as Anzio, Ploesti, Guadalcanal, and Luzon, over fifty-two thousand of those airmen lost their lives. We must never forget that we prevailed because of the selflessness, the courage, the talent, and the immense personal sacrifice of so many airmen serving alongside their comrades of the Army, Navy, and Marine Corps.

We look back with admiration at the accomplishments of this generation of Americans. They earned our lasting respect and set a lasting standard for those of us who've followed in their footsteps.

Since World War II we've added thirty campaign battle streamers to our Service flag. Our nation has called on other young Americans to be vigilant guardians of freedom. And like their comrades from both World Wars, they were willing to sacrifice all for the cause of freedom.

Today, we carry the torch handed on by generations of airmen. The men and women of today's Air Force share their determination to keep the flame alive, to bear the standard of freedom, and to guard this nation's skies.

Today, America's airmen are again being tested around the world in Bosnia, in Iraq, in the Persian Gulf. They are as professional and as well trained as any force in our nation's history.

We must never forget, however, that their skills and capabilities are a direct result of lessons learned from those who came before, lessons paid for with blood and sacrifice in a thousand battles, in a thousand fiery skies. To the men and women who made these sacrifices fifty years ago: We salute you.

**National Day of Recognition for
United States Army Air Forces
Veterans of World War II**

**Remarks at Pentagon Center Court
August 7, 1995**

**General Ronald R. Fogleman
United States Air Force Chief of Staff**

It's a great pleasure for me to join Secretary Widnall in opening today's activities in honor of U.S. Army Air Forces veterans of World War II. As the Secretary indicated, we all are deeply indebted to the brave American airmen who risked their lives in defense of democracy during that fateful time. Your tremendous courage and unwavering commitment contributed enormously to Allied victory fifty years ago. You established your fame in the war-torn skies over North Africa, Europe, Asia, and the Pacific.

Despite the odds, you pressed the attack repeatedly and eventually won the day. The heroic efforts of the U.S. Army Air Forces in World War II demonstrated that air power can have a decisive impact on the outcome of a battle, a campaign, and even a war. You confirmed Giulio Douhet's prediction: "Aerial warfare will be the most important element in future wars." You provided compelling justification for the creation of an independent United States Air Force. The U.S. Army Air Forces vividly demonstrated the inherent flexibility of air power.

You bolstered America's morale with the Doolittle Raid on Tokyo, while landing a crushing blow on the Japanese psyche. You opened a second front over occupied Europe long before the invasion of Normandy, while tying up enormous enemy resources with your persistent attacks in an aerial offensive that mortally wounded Nazi Germany. You leveled Japanese industrial centers with bomber raids from distant bases. You swept enemy air forces from the skies, securing the air superiority that was so crucial to the success of ground and naval operations.

You worked closely with Allied ground forces, supporting their operations with overwhelming firepower from above, even protecting General George Patton's right flank as he drove across northern France. The U.S. Army Air Forces conducted devastating interdiction campaigns that denied the enemy the critical resources and mobility needed to counter Allied offensives.

You cooperated with Allied naval forces to eliminate the German U-boat threat, to decimate Japanese supply convoys in the Southwest Pacific and to bottle up Japanese shipping with aerial mining. You transported millions of tons of supplies over "the Hump" in the CBI [China-Burma-India] theater and delivered paratroopers, glider troops, and infantry directly into battle. All the while, your innovative ground crews "kept 'em flying" despite harsh conditions and limited resources. Finally, you delivered the atomic bombs that forced Japan to surrender and brought World War II to a triumphant close.

Half a century ago, you, the men and women of the U.S. Army Air Forces wrote a glowing volume in the annals of air power history. Your enduring legacy is a free world and an independent U.S. Air Force. For these, our nation and our service owe you an eternal debt of gratitude. Thank you, and God bless.

**National Day of Recognition for
United States Army Air Forces
Veterans of World War II**

**Remarks at Pentagon Center Court
August 7, 1995**

**Lieutenant Colonel Donald S. Lopez
United States Air Force, retired**

Good morning, ladies and gentlemen. I have the great and somewhat humbling honor to represent the U.S. Army Air Forces members who served so well in World War II. Led by experienced veterans of the pre-war Army Air Corps, most were young men and women from all walks of life who'd never been out of the country or, in many cases, out of their home states. Despite that, they responded immediately to our country's needs and, in less than a year after entering service, many were engaged in combat all over the world under most difficult conditions. They fought in the deserts of North Africa, the ice of the Aleutians, the oceans and jungles of the Pacific, the obscene weather and even more obscene flak of Europe, and, in my case, the mountains of China. They overcame these obstacles with courage and skill and went on to defeat tough enemies in all theaters of the war.

Survival was not guaranteed; many lost their lives or were badly wounded, others spent agonizing years in prison camps. Those who survived the war put their experiences to good use. Their leadership skills, work habits, and toughness developed in the Army Air Forces paid off in the post-war world. Some stayed in the service and, with the aid of the G.I. Bill, became the nucleus of the United States Air Force. Some went into the airlines and helped in their expansion. Still others became leaders in business and government. All can look back with justifiable pride on their wartime service.

The exploits of the aircrews are well remembered, as they should be. The fighter pilots, the bomber, troop carrier, and air transport crews, and those with the most dangerous job of all, the flight instructors, have all received their share of glory.

However, equally important to the war effort and probably more hard working, were the ground crews and other support personnel: the mechanics who spent long hours in freezing cold or broiling heat to ensure that the aircraft were ready, the armorers who struggled to load heavy bombs, the parachute riggers, radiomen, and many others who made the accomplishments of the aircrews possible.

The aircrews had a well-justified faith in the ground crews, confident that their aircraft would carry them safely above hundreds of miles of enemy territory. I flew over a hundred missions in China and, although my heart skipped many a beat, my engine never did.

The public may not know or may not remember how important the ground crews were to the aircrews, but we aircrews know and we remember. We always will.

**National Day of Recognition
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***Reflections
on the
Air War in Europe***

Panelists

Gen. Jacob E. Smart, USAF, retired
Maj. Gen. Ramsay D. Potts, USAF, retired
Maj. Gen. Lewis E. Lyle, USAF, retired
Col. Harold D. Jefferson, USAF, retired
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Lt. Col. Woodrow W. Crockett, USAF, retired

Introductions

Gen. Bryce Poe, II, USAF, retired

Overview

Dr. Richard G. Davis

The Air War in Europe

Gen. Poe: Ladies and gentlemen, welcome to the European portion of the World War II symposium on this national day of recognition for the United States Army Air Forces veterans of that war. I'd also like to give a special salute to those of you of any service in any theater who made those sacrifices to win that fight.

I'm General Bryce Poe, U.S. Air Force, retired, and president of the Air Force Historical Foundation. I'm very honored to be asked to participate today. Our time is limited, so we'll move right on with a quick look at the air war in Europe, presented by a recognized expert on the subject.

Richard Davis, with more than fifteen years as a key member of the Office of Air Force History, earned his Ph.D. from George Washington University. In addition to many articles and monographs, his books include the most recent and authoritative book on General Carl Spaatz. Dr. Davis also supports plans and operations on a daily basis for today's Air Force. For example, he's the author of a high-level Air Force-Army study on joint operations. I've been told that the Air Force is involved today in thirty-eight joint operations around the world. Also, he's written a classified monograph on strategic bombing in the Gulf War. He's presently working on a biography of General Henry "Hap" Arnold. We're delighted to have you here, Rich.

Dr. Davis: I understand I have ten minutes to tell you all about the air war in Europe and the Mediterranean during World War II. Let's get on with it.

U.S. air operations fell into two distinct fields of effort. They consisted of a strategic air campaign against the German war economy, and tactical air support of American ground forces. In 1945, the leaders of the U.S. Army Air Forces in distinguishing between the two forms of air power said, "If your enemy needs milk, the tactical move is to kick over the milk pail; the strategic move is to kill the cow."

In the strategic sphere, the AAF believed that bombers without escort fighters could attack and destroy German war industries accurately and in daylight while suffering sustainable losses. In the tactical sphere, using methods based on British combat experience, the AAF developed a scheme of command and control of tactical air power that placed airmen in control of their own forces. Tactical air operations required the cooperation and understanding of two armed services, each with a unique perspective of ground operations.

The initial ground campaign in Tunisia demonstrated the difficulties inherent in orchestrating ground and air efforts. At the outset, neither land nor air forces understood the Army's air support doctrine. Both were forced untested into combat. As a result, problems, such as the lack of radar for early warning and the fear by ground units of air attack, hampered cooperation. In mid-February 1943, the placement

Reflections and Remembrances

of all Anglo-American tactical air under an experienced air officer, Air Marshal Arthur Coningham, coincided with reinforcements and solutions to logistics problems to enhance air's effectiveness.

It's interesting that in early April 1943, General George Patton, who commanded the only American corps in Tunisia, complained that he wasn't getting enough air support. The British, incidentally, had four corps at the time. A distinguished delegation of airmen went to talk to Patton, to try and convince him that he was getting his fair share. They were a British four-star, Air Chief Marshal Arthur Tedder, who commanded all Anglo-American air power in the Mediterranean; Major General Carl Spaatz, who commanded all Anglo-American air power in Tunisia; and Brigadier General Laurence Kuter, the senior American officer in the tactical air force in Tunisia.

No sooner had the airmen gotten out of their car than two German FW 190s strafed Patton's headquarters. It was a tremendous scene, a big hurrah as Patton fired away with his .45. This is the scene that opens the movie, *Patton*; it was so good that Hollywood couldn't make it any better and just copied it. When it was over, Patton looked up at the Germans and said, "If I could catch up with those SOB's, I'd give them each a medal." One of the airmen, who shall remain nameless, turned to the other two and said, "Well, you told me he was a showman, but how in bloody hell did he manage that?"

In the end, tactical air contributed greatly to the defeat of the Axis on the ground in Tunisia, assisted in repelling Axis counterattacks against the beachheads on Sicily, and maintained air superiority throughout the Mediterranean.

In winter 1943 and 1944, tactical air aided the fruitless Allied assaults on Cassino and the Rhine and the defense of the Anzio beachhead. In spring 1944, the Twelfth Air Force undertook Operation STRANGLE to interdict German supplies in support of the planned Allied spring offensive. Although recent research has revealed that the operation didn't achieve the success claimed for it, it, nevertheless, placed added strains on an enemy already stretched to the limit. In winter 1944 and 1945, tactical air in Italy followed the same pattern.

Meanwhile, in the European theater, the AAF had established the Ninth Air Force in Britain in October 1943. By June 1944, under the command of Lieutenant General Lewis Brereton, it had become the most powerful tactical air force in World War II. Initially, its fighters flew escort for strategic bombers attacking Germany. However, by March 1944, as the needs of the Anglo-American invasion forces increased, the Ninth switched its emphasis to air-ground training and particularly to attritional air attacks on Belgian and French transportation systems. The Allied high command expected these attacks to hinder the post-invasion movement of German reinforcements and logistics to oppose the beachhead, which they did.

The Air War in Europe

On the day of the landings in Normandy, the Ninth's medium bombers struck the invasion beaches. Its fighters provided air cover while troop transports delivered the bulk of Allied parachute forces. Allied fighter-bombers made daylight movement by German ground forces almost impossible, while entirely thwarting the operations of the German air force. After assisting in the breakout from the beach-head on July 25, 1944, the Ninth worked closely with the U.S. 12th Army Group by assigning a tactical air command to each of its armies. Pilots literally rode in the turrets of the most advanced American armored spearheads in order to call on air power when it was needed. In August, American heavy bombers also flew much-needed gasoline to the continent to help supply Patton's spearheads. With the invasion of southern France, the AAF established the First Provisional Air Force to help the U.S. 6th Army Group.

In the winter of 1944-1945, the Germans purposely launched an Ardennes counteroffensive in poor flying weather in hopes of negating Allied air power. Their ploy ultimately failed. Tactical air pushed back the counteroffensive and then assisted the Allied drive into Germany in the spring, easing the way for the ground forces in victory.

On an increasing scale from mid-1942 through May 1945, U.S. strategic air operations contributed to the defeat of Germany. Bombing constituted a second or third front for the enemy, which was forced to disperse aircraft and ball bearings industries, devote two million men to air defenses, skew aircraft production toward interceptors, and divert high-velocity artillery and vital communications equipment to homeland defense. This drain, which increased throughout the conflict, constituted a significant, if somewhat intangible, achievement of strategic bombing.

U.S. strategic air operations began with a raid of twelve B-17s on the Rouen marshalling yards in France in August 1942. On January 27, 1943, fifty-five aircraft made the first American strike in Germany on the naval base at Wilhelmshaven.

Throughout the strategic war, air power would be the focus of intense political, diplomatic, military, and bureaucratic pressures. Pre-war plans specified that the U.S. air force in Britain, the Eighth, would be the AAF's largest overseas contingent and would have the task of conducting an offense against the German war economy. However, shifting priorities slowed the Eighth's rate of growth, leaving it to test pre-war doctrine under strength, and that doctrine, after much spent blood, showed serious shortcomings.

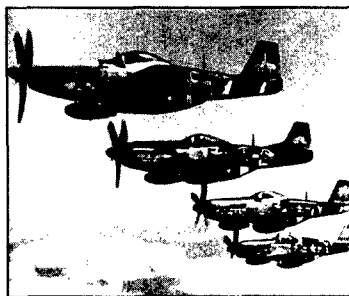
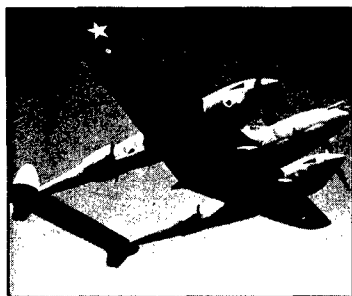
By the second Schweinfurt raid of October 14, 1943, the Eighth had failed to gain air superiority over Germany. Its short-range fighters were unable to accompany the bombers deep into Germany, where the bombers suffered crushing losses. European weather allowed only a slow rate of operations. Also, wartime crew training was unable to

Reflections and Remembrances

produce sufficient personnel capable of duplicating pre-war bombing accuracies. Until the fall and winter of 1943, the Eighth inflicted no permanent damage on the German war effort.

But, by the end of February 1944, the force's fortunes reversed. In November 1943, the Eighth had introduced the H2X radar bombing device. It permitted the bombing of large targets through clouds and, consequently, allowed a far greater increase in operations. Long-range escort fighters with drop tanks, P-51s and P-38s, arrived in large numbers, while a tactical change by the Eighth's new commander, Lieutenant General James Doolittle, required American fighters to attack German aircraft from cloud top to tree top, rather than to passively protect the bombers. Constant combat increased the attrition of experienced German pilots to catastrophic levels. In addition, an influx of new groups almost doubled the Eighth's bombload, while the creation of a new strategic air force, the Fifteenth in Italy, opened new areas of attack to spread German air defenses.

Just as the Eighth was gaining air superiority over Germany, a dispute arose in London over how best to use the heavy bombers in the coming invasion. Lieutenant General Spaatz, commanding the U.S. Strategic Air Forces, the Eighth and the Fifteenth, wanted to attack German synthetic oil, while General Dwight Eisenhower favored attritional hits on Belgian and French rail systems. However, he allowed two raids against oil targets in May 1944. Their success was confirmed by the ULTRA organization in some of its most significant intercepts of the war. They revealed the Germans moving anti-aircraft guns from the Eastern Front and fighter aircraft factories to the oil plants. The Allies knew that the Germans wouldn't have done so, especially for unimportant targets, had they not been hurt. However, the strategic air forces' chief success in the Normandy invasion was their elimination of the German day fighter force, which mounted no air opposition during or after the invasion; most of its aircraft had been shot down.



Drop tanks to the rescue. Affixed to the Lockheed P-38 twin-boom Lightning, *left*, and the North American P-51 Mustang, *right*, auxiliary fuel carriers gave the fighters greater range, enhancing them as strafers and bomber escorts.

The Air War in Europe

For the rest of the war, that is, from the summer of 1944 on, synthetic oil was the primary strategic target. The AAF had, since beginning its wartime operations, been interested in oil, and one of its chief targets was the Romanian oil complex at Ploesti, Hitler's prime source of natural oil. If the complex was knocked out, he had to fall back on synthetic oil. If synthetic oil was knocked out, he had nothing else.

A year before this, on August 1, 1943, the AAF launched a very low-level attack on Ploesti in one of the most courageous and daring missions in air power history. The forces lost one-third of their planes, but they shut down Ploesti's production for a while. A story of the attack illustrates the wry humor of some of the American aircrews participating in that remarkable action.

One group, by mistake, had started to cross at a 90-degree angle to another. Now, the two groups were crisscrossing at a closure speed of four hundred miles an hour. That was very dangerous and very unplanned. One among the amazed German anti-aircraft gunners happily shooting at the groups supposedly exclaimed, "Wow, those guys are well trained. Our people could never do that!"

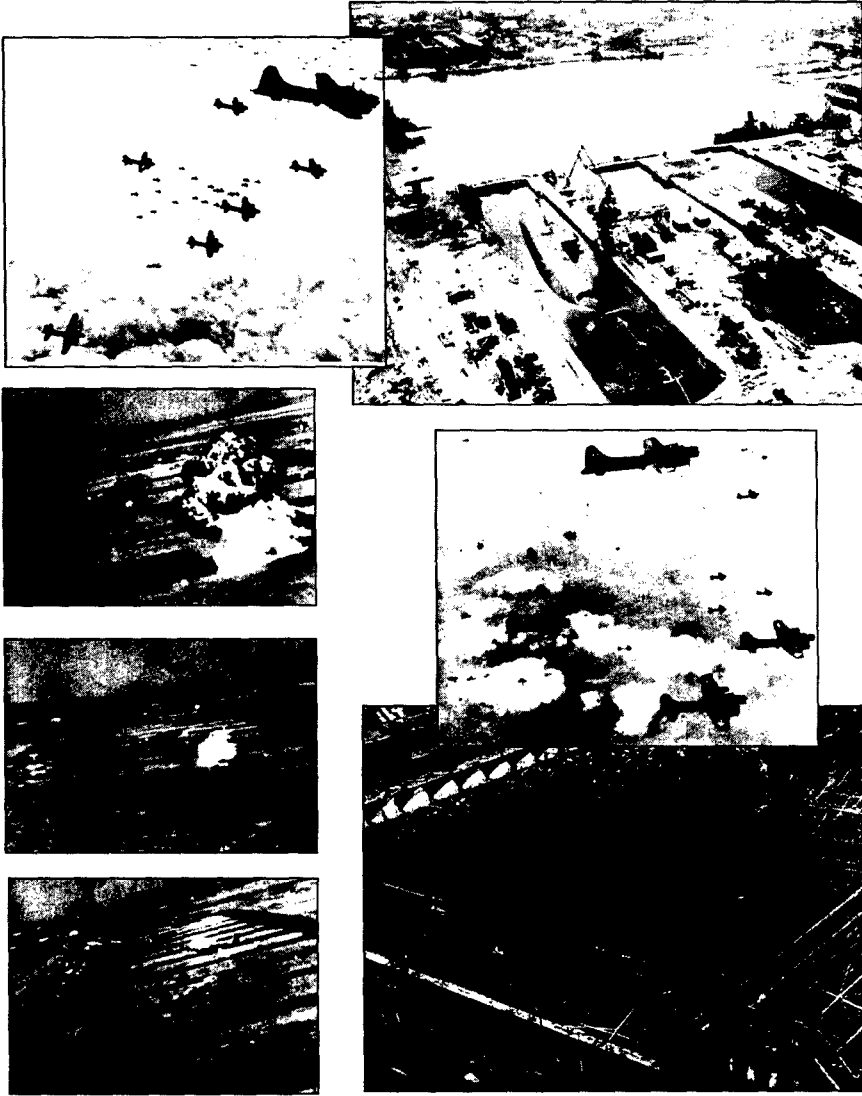
By September 1944, bombing temporarily halted enemy oil production entirely in a campaign that deprived the German air force of flight and training time, severely hampered the mobility of ground forces, and even limited the supply of U-boat fuel. It was U.S. strategic bombing's finest achievement, the destruction of a vital compact target system with minimal damage to civilians.

However, the harsh winter of 1944-1945 rendered the refineries invisible even to radar. Consequently, the Eighth devoted a majority of its effort to hitting the German rail transportation system, especially after the Battle of the Bulge. Key to the rail system were the marshalling yards, typically located in the midst of or close to German urban areas. Given its inaccuracy through cloud cover, the bombing of rail yards inevitably created havoc among civilians living nearby. The Eighth furthered its destruction of the German rail transportation system by employing large numbers of incendiary bombs.

At the end of January 1945, strategic bombers began an offensive against eastern Germany to aid Soviet ground advances and to demonstrate the seriousness of Allied solidarity. They dropped leaflets to show the Germans that the Western Allies were still cooperating with the Russians and followed with strategic raids on Berlin and other cities, including the controversial target of Dresden on February 14th.

Ironically, transportation bombing achieved its aim. By the end of February 1945, it had ruined the enemy's rail system and shattered his ability to sustain a war economy. However, the speed and thoroughness of his collapse had overshadowed this final accomplishment. In all, air operations were decisive in the defeat of Germany. Thank you very much

The U.S. Army Air Forces in the Skies over Europe

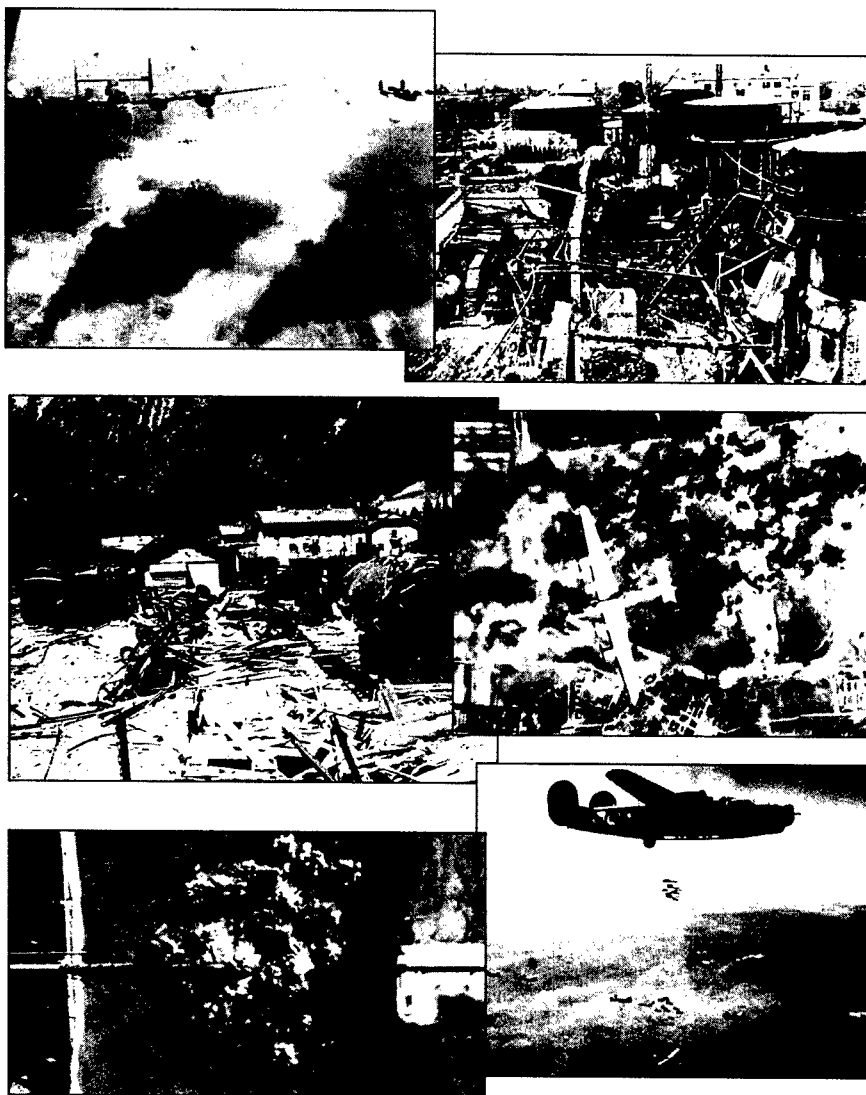


The Eighth Air Force, based in England, conducted heavy bombing missions against oil refineries, aircraft and weapons manufacturing plants, ports, roads, bridges, railways, and other strategically vital targets supporting Hitler's war economy. USAAF bombers faced flak, foul weather, and, on early missions, limited-range fighter escort in perilous daylight raids over enemy territory. *Clockwise from top, left:* In Germany, Eighth Air Force Boeing B-17 Flying Fortresses making their way home after hitting dockyards through solid cloud cover over Wilhelmshaven; the Wilhelmshaven dockyards hit by those Fortresses—note the capsized ship; B-17s boring through a wall of bursting anti-aircraft artillery—flak—to their prize target, Berlin; a roofless Berlin ammunition production factory battered by their bombs; the approach and strike on enemy aircraft at a Luftwaffe airdrome registered in three frames by an Eighth Fighter Command strafing's wing-mounted camera.

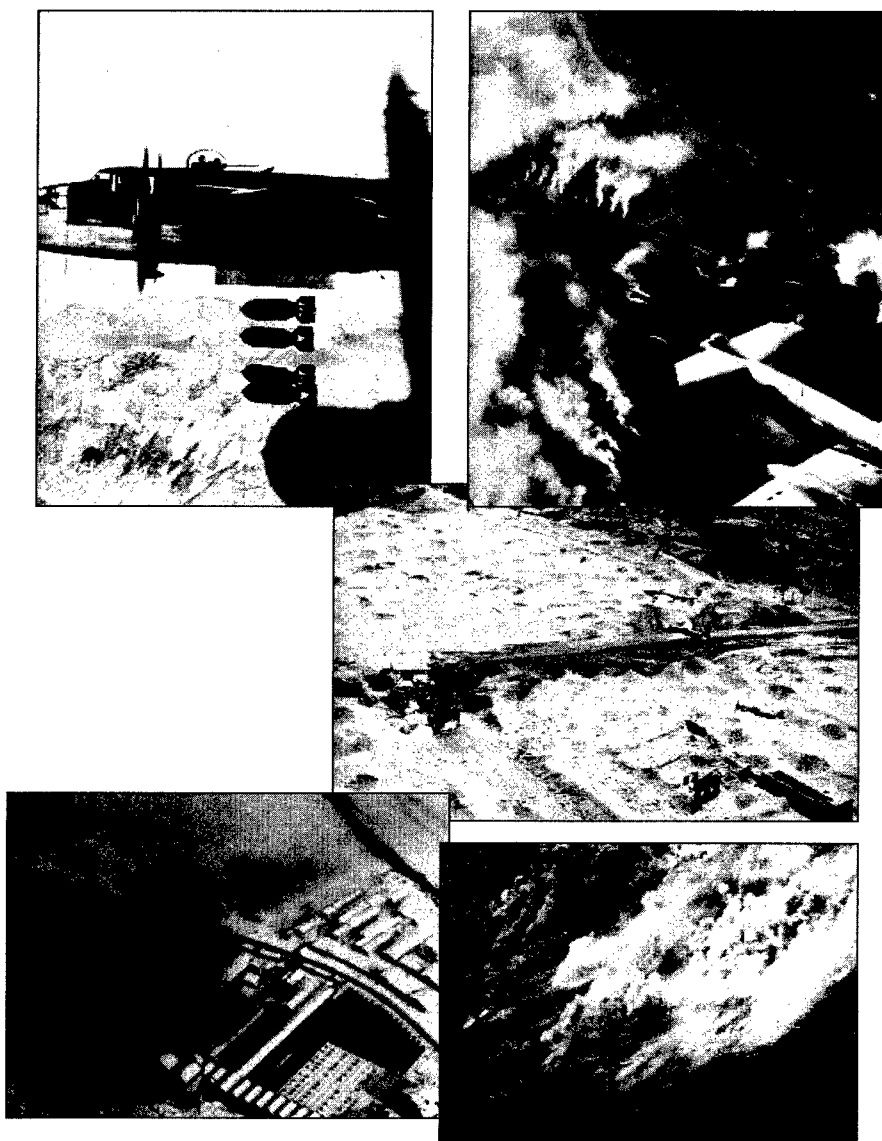


From Egypt, the Ninth Air Force participated in Allied drives across North Africa, the Tunisia campaign, and the invasion of Sicily. From England it became the tactical air force for the invasion of continental Europe. **Clockwise from top, left:** Consolidated B-24 Liberators braving the heavily defended Romanian oil refining complex in Ploesti, Hitler's principal source of fuel, in the low-altitude raid of August 1, 1943, a deadly and costly mission to the attackers; a Martin B-26 Marauder overflying German troop concentrations in the D-Day assault on Normandy beach; a Douglas A-20 Havoc unloading its bombs on marshalling yards in Damfront, France, where enemy transportation targets were high on the Ninth's priority list; a freight train and rail span over the Moselle River; and a bridge over the Rhine River in Cologne showing the destruction wrought by tactical air power.

The U.S. Army Air Forces in the Skies over Europe



The Italy-based Fifteenth Air Force conducted strategic bombing in the Air Offensive for Europe and in campaigns for Naples-Foggia, Anzio, Rome-Arno, Normandy, France, Germany, Poland, Czechoslovakia, Austria, Hungary, the Balkans, Northern Appenines, and Po Valley. ***Clockwise from top, left:*** Waves of Consolidated B-24 Liberators pounding Ploesti's oil plants on May 31, 1944, in one of many missions from higher altitudes, which afforded no protection from anti-aircraft fire; Ploesti's Concordia Vega facility in ruins (the destruction of the huge complex and the denial of its oil to the Germans was significant to their defeat); a B-24 hitting the Otopeni Airdrome in Romania; other B-24s releasing their bombs over Obertraubling airdrome in Regensburg, Germany; 1,000-pound bombs from Boeing B-17 Flying Fortresses making a perfect pattern on Pancevo Bridge across the Danube River in Belgrade, Yugoslavia; an Italian marshalling yard rendered unusable by Fifteenth Air Force bombs.



With the Northwest African Air Force and the Mediterranean Allied Air Forces, the Twelfth Air Force served in the Algeria-French Morocco, Tunisia, Sicily, Naples-Foggia, Anzio, Rome-Arno, Southern France, North Appenines, and Po Valley campaigns. In England, it participated in the Allied Normandy invasion. *Clockwise from top, left:* Bombs from North American B-25 Mitchells heading for a rail line across the Brenner Pass in Operation STRANGLE; the San Michele rail bridge, a key link on the Trento-Bolzano Brenner Pass feeder line and object, although obscured by smoke pots, of a direct hit by B-25s above; a B-25 and two P-47s flying low to inspect damage done to the Brenner Pass rail line by Twelfth Air Force bombers; the island of Pantelleria, an Axis stronghold between Tunisia and Sicily, under one of many assaults by Twelfth Air Force bombers in a crucial show of air power in May and June 1943; a northern Italian industrial complex under attack by Republic P-47 Thunderbolts in winter 1944.

Reflections and Remembrances

Gen. Poe: Thank you, Rich. I'd now like to introduce to you the members of our panel. We're privileged to have six veterans of that air war in Europe. My great grandfather, a Civil War soldier, lived to tell me some of his stories. I'm sure that what he'd say to me about the veterans here today is that they'd all "seen the elephant." They experienced a war that very few other veterans have.

The Eighth and Fifteenth Air Forces carried the war to the enemy with skill and courage, but they paid for their success in blood. Forty thousand airmen in the Eighth and Fifteenth Air Forces were killed in action. Put into perspective, those losses are more than the terrible losses suffered by the entire U.S. Navy or Marine Corps worldwide in that conflict. In addition, fifty thousand airmen were shot down and made prisoners of war. Even pre-combat training was costly. In just three years, 1942, 1943, and 1944, over twelve thousand of our airmen trainees died in flying training accidents here at home.

I feel most humble to be the company of our panelists. While I qualify as a veteran of their war, when they were over at Ploesti or Regensburg, I was grinding around Oklahoma in a Stearman biplane learning how to fly.

In our distinguished company we have, first, **General Jacob "Jake" Smart**. He's a 1931 West Point graduate, with a distinguished thirty-five-year military career. He played a key part in every facet of World War II aviation, beginning as chief of flying training in the AAF. He was a planner for the Casablanca, Washington, D.C., and Quebec Conferences. Later, in combat, he commanded the 97th Bomb Group. He was wounded, shot down, and captured on this twenty-ninth mission and spent the rest of the war in prison camp. It's fortunate that the Germans never learned that he knew about the atomic bomb project and where the Normandy invasion forces would land; otherwise his terrible prison life might have been even worse than it was.

Yet, that war wasn't enough for General Smart. He went on to the Korean War and was wounded again. Thereafter, he continued in many key assignments to his final post as Commander in Chief, Pacific Air Forces. Since retirement, he has contributed generously his knowledge and time in supporting both our Air Force itself and Air Force history.

Major General Ramsay Potts, a 1931 University of North Carolina graduate, in 1941 and went directly into the AAF as a second lieutenant. He went on to fly B-24s, rising to lead two different Eighth Air Force groups into combat, including one of the groups in the famous low-level bomber attack on Ploesti that we've just heard about. He rose to be director of bomber operations for the Eighth Air Force while continuing to fly combat missions throughout 1942, 1943, and 1944. Not many people did that, as the decorations that he wears show so very clearly.

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After serving in the post-war United States Strategic Bombing Survey, he went on to earn a Harvard law degree, and is now a senior partner in one of Washington's most prestigious law firms. He has continued to serve the nation as an advisor to Presidents, chairman of the Air Force Reserve Policy Commission, and a lecturer at the Smithsonian Institution and the Air War College. General Potts is an author, a trustee, and former president of the Air Force Historical Foundation as well as publisher of its professional journal, *Air Power History*.

Major General Louis Lyle has had a long and distinguished career in the U.S. Air Force, serving his country in World War II and on through Vietnam. During World War II, he piloted B-17s as a member of the 303rd and 379th Bomb Groups, participating in the two Schweinfurt missions that will always be remembered. He flew seventy missions in all, in four as lead bombardier. Also, he commanded the 379th Bomb Group until the defeat of Germany. General Lyle is one of the few men who flew with both the Fifteenth and Eighth Air Forces. He also served as General Ira Eaker's command pilot to the Casablanca Conference, where Generals Spaatz, Eaker, and Doolittle and their staffs put together the Eighth Air Force position on daylight bombing from the United Kingdom. Eaker was selected to make the case at the Casablanca Conference in January 1943. He convinced the Combined Chiefs of Staff, President Roosevelt, and Prime Minister Churchill that bombing by day and night was the best strategy.

After the war, he went on to serve with distinction in Strategic Air Command [SAC]. I can remember in those days, whenever General LeMay had a problem, he'd send General Lyle to straighten it out. General Lyle served with both Second Air Force and SAC staffs and commanded units equipped with the RB-45, B-29, B-47, and B-52, and was combat qualified in each. He also commanded units equipped with ICBMs, including the Atlas, Titan, and Minuteman, and he was rated a senior missileer. No one has done more to document and preserve the history of the Eighth Air Force. He's president of the Eighth Air Force Heritage Museum in Savannah, Georgia.

Colonel Harold Jefferson, early in the war, served on the headquarters staff of the 15th Bomb Wing as armament and gunnery specialist and wing bombardier, passing on the combat training and readiness of newly-formed heavy bombardment groups. We heard earlier about how important and difficult that training was. He went on to fly combat in B-24s of the Fifteenth Air Force's 450th Bomb Group, serving as squadron armament officer and staff bombardier of the 723rd Squadron. Colonel Jefferson flew as lead bombardier, was shot down on his thirty-seventh mission over Vienna, and wound up as a prisoner of war in the infamous *Stalagluft III* north compound, the site, you may remember, of "the Great Escape" in Germany. With the approach of the Red Army, over 10,000 prisoners were forced from

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Stalagluft III through cold and blizzards to Spremberg on foot and to Nuremberg and *Stalag* XIII-D by boxcar. Later, they were marched to *Stalag* VII-A at Moosburg, where 110,000 Allied prisoners were finally liberated by General Patton's 14th Armored Division.

Colonel Jefferson became a career U.S. Air Force intelligence officer, right after the war helping to exploit German scientists and serving as a senior targeting officer in Headquarters, SAC. He flew combat missions in and served as Director of Targeting, Far East Air Forces Bomber Command in the Korean War. He also served as Director of Target Intelligence, Assistant Deputy Chief of Staff, Intelligence, and Acting Deputy Chief of Staff, Intelligence, at Headquarters, Fifth Air Force. Two tours in Headquarters, U.S. Air Force Intelligence, in the Pentagon, a special assignment to organize and manage a new element of the Defense Intelligence Agency, and a tour as Director of Intelligence, Headquarters, Military Airlift Command, rounded out his Air Force career. In the service, Colonel Jefferson earned a Master's Degree and completed extensive Ph.D. studies in geopolitics and international relations at Georgetown University. Active in the National Organization of Ex-Prisoners of War, he's served two terms as president of the Northern Virginia chapter and one on the board of the Virginia state organization.

As a fighter pilot, I was always overwhelmed by bomber people telling me what to do and where to go, so it always gives me great pleasure to introduce a fellow fighter pilot, in this case, **Lieutenant Colonel Woodrow Crockett**. He began his military service with the artillery, but noticed the considerable advantage in pay in the AAF. After flight training, he was assigned to the 332nd Fighter Group, arriving in Italy in February 1944. In June, the group was transferred to the Fifteenth Air Force to fly bomber escort missions. All in all, Colonel Crockett, who moved right up in that outfit, flew 149 combat missions. He became high man for the famous outfit that could brag that it never lost a bomber to enemy air. One of those missions was the Fifteenth's only raid on Berlin, where its Mustangs tangled with the new German Me 262 jets and shot down several.

Colonel Crockett was a safety officer in atomic testing in 1951. He then went off to combat again in the Korean War, flying forty-five missions in the F-80 Shooting Star jet. I frown a little when I look at you, Colonel Crockett. I imagine you're probably one of those people who blew up and burned everything with that aircraft, and then I, a reconnaissance pilot, came along with only cameras. Everybody was furious at us, when all we wanted to do was take pictures.

Colonel Crockett was assistant test director for the F-106, earning that Mach 2 card that few aviators have. In addition to his many combat decorations, he's the only airman I know to win two Soldier's Medals for pulling pilots out of burning aircraft—the first time out of

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a Mustang in Europe and another time out of an F-80 in Korea. Colonel Crockett was selected by his home state of Arkansas for a place of honor in their Aviation Hall of Fame. You may have seen him on television recently, leading both the President and Prime Minister Major to the site in England where they were to honor the fallen airmen of World War II.

Lieutenant Colonel Harry Crosby served in the 100th Heavy Bomb Group with the unfortunate name of "the Bloody 100th," from its first combat mission in June 1943 to its last in 1945. Although Colonel Crosby admits that he never went on a mission without an air sickness bag, he, nevertheless, flew over thirty combat missions, including the first raids on Schweinfurt and Berlin in March 1944. On both occasions, the 100th received distinguished unit citations.

During his service, Colonel Crosby rose from crew navigator of the squadron to navigator of the group. After the war, he taught rhetoric and writing at the University of Iowa, Boston University, and Harvard University. He also helped to establish the original curriculum of the Air Force Academy. Currently, he devotes most of his energy to Air Force history. His most recent book on his wartime experiences, which I highly recommend is, *A Wing and a Prayer: The 100th Bomb Group*. It's been praised as one of the best personal memoirs on the air war in Europe, and I can vouch for that.

Let's begin with some questions and then, time permitting, we'll open the floor for the rest. First, a question for General Smart. Very early in the war, you served with AAF Headquarters. Can you give us an assessment of that top leadership? How did it appear to you as you went on to combat in Europe?

Gen. Smart: I assess the military leaders of World War II in Washington to have been among America's ablest citizens. They mustered courage and prodigious talents to overcome military unpreparedness, to direct and oversee the building of military forces that could engage successfully in global war, and to meet the demands of the times in many other ways.

I was brought into Headquarters, U.S. Army Air Corps, from a pleasant existence in the Flying Training Command in Texas. I can assure you that was quite a shock. The area of responsibility and the roles we played in the Air Training Command, we thought, were quite complex. But I'll tell you, they were child's play compared to the area of responsibility at headquarters and the roles that were played by the Chiefs of Staff in Washington, for whom I found myself working, with little or no preparation.

I worked with General Arnold, Commanding General, U.S. Army Air Corps, who was responsible for the development and deployment of forces to fight the war in the Pacific and European theaters. He had

Commanding and Arming the Air Forces



America's military services in World War II were led by extraordinarily dedicated and talented officers. *Center, left*, Gens. Henry "Hap" Arnold and George Marshall were responsible for building up the air and ground forces. Arnold, *center*, spurred American industrialists to "go all out" producing the weapons for what became the greatest air armada ever. Manufacturers churned out aircraft as fast as production permitted. Filling their factory floors are Lockheed P-38 Lightnings, *top, left*, and Consolidated B-24 Liberators, *bottom, left*. USAAF chiefs were experienced and practical. *Center, right*, Arnold's top airman, Lt. Gen. Carl Spaatz, Commander, U.S. Strategic Air Forces in Europe, is decorated by Gen. Dwight Eisenhower, Supreme Allied Commander. *Top, right*, Spaatz confers with two of his chiefs, Nathan Twining, Fifteenth Air Force, to his left, and Ira Eaker, Mediterranean Allied Air Forces, and, *bottom, right*, with another chief, Jimmy Doolittle, center, Eighth Air Force, while debriefing aircrews.

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additional duties as a member of the Joint Chiefs of Staff, who were responsible for, in General Marshall's case, the development of Army forces, and, in Admiral King's case, for the development of Navy forces. Jointly, these men were responsible for the military direction of mobilization.

Some of you in this audience who are old enough can recall that we Americans tried diligently to avoid becoming involved in World War II. Many people thought that we could, so we delayed developing our own military forces. Equally important, we delayed developing the industrial base that was necessary to support our war effort and that of our Allies. We played a very long and difficult game of catching up. Uppermost in the minds of the Chiefs of Staff, I think, was the matter of combat operations, how the war was going. You're well aware of the fact that the war was going quite badly for our side during the first eight to ten months. Eventually, however, we began to turn things around. During the difficult days and during the more prosperous days, the Chiefs of Staff were primarily interested in maintaining an understanding of what the conditions were on the battlefronts in both Europe and the Pacific and in the Battle of the Atlantic.

The Army Air Forces maintained a situation room in which maps were displayed. In each battle area the routes by which the forces were supplied were clearly identified and the sizes of the competing forces were listed. General Arnold visited this room at least daily to get an update concerning the situation on the fighting front. Equally of interest to him was the progress of units being transferred from the United States to augment the strength of those fighting the war. During the initial months of 1942 and, in fact, throughout 1942, the flow wasn't very great, indeed, not nearly as great as it needed to be.

The Chiefs of Staff were confronted with unbelievably difficult decisions. There was the matter of allocating basic resources between the construction of aircraft, the construction of naval vessels, the construction of the forces needed for the Army and, of course, the construction required for the growth of an industry that supported these military forces. There was also the matter of deciding which theater would get what forces, and the agreed-upon strategy provided that Europe would enjoy first priority in the allocation of resources. It was our hope and expectation to win the war in Europe and then mass the forces of the United States and its Allies against Japan.

But, having helped make the decision to give Europe priority, the Chiefs of Staff still had the problem of determining how much in the way of resources went to Europe, how much went to the Pacific, and how much was devoted to the Battle of the Atlantic, which, many of you will recall, was indeed a disastrous experience.

From 1942, I believe, statistics show that we lost ships to submarines faster than they were being built in the United States and

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faster than they could be replaced. So there was a great demand for air forces for anti-submarine work as well as air forces for engaging in combat against the Japanese and the Germans. May I have one minute for an anecdote?

Among the problems faced by the people who worked in Washington was that of responding to political interests. There was a phenomenon at that time known as "gangplank fever." A large number of Americans who were drafted, the parents of Americans who were drafted, and some volunteers didn't want our young men to go overseas. The young men moved heaven and earth, even got sick from time to time, to avoid going over. In contrast, many Americans just couldn't wait to get overseas. Among those who wanted to go were World War I veterans, but for one reason or another, many of them weren't privileged to do so. They also attempted to employ their political friends to enable them to go.

One such man, who was turned down by everybody short of the President, came to me and thanked me for my help in trying to get him back into the Army Air Forces. He said, "Since I can't go, I want to do a favor for you. I want to give you the name and address of the loveliest little girl in all of France." Apparently, it never occurred to the man that this woman was a grandmother and possibly had sons of her own fighting the war. So the message is: In time of war, one could experience all sorts of things. Thank you very much.

Gen. Poe: General Lyle, you flew combat missions with both the Eighth and the Fifteenth Air forces and saw the war from the viewpoint of both the individual pilot and the commander who had the responsibility for leading large formations in combat. Could you discuss the kind of motivation and leadership that resulted in almost daily successes against tough resistance that carried heavy losses?

Gen. Lyle: Well, I had an easy time during the war. All I had to do was to fly combat in a B-17. I've just finished reading Richard Davis' book about the hazards that General Spaatz, his staff, and all of these senior officers had during the war. I never dwelled on what was going on at that level. All I had to do was to take the field order and do my best to carry it out.

I was lucky, because I was an "old man" when the war started; I was twenty-four years old when I graduated from flying school. Prior to that, I'd been checked out in an airplane and taught to fly by a cotton duster named "Booger Red," who gave me good basic training.

I went overseas with the 303rd [Bomb Group] to Molesworth. We'd originally been scheduled to be one of the first groups over there. We flunked the operational readiness inspection, the ORI, and were broken up. Eventually, I got to Europe in September 1942. I stayed

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with the 303rd and then the 379th for the entire war and flew combat the whole time to May 1945, flying over seventy missions.

Trying to keep people motivated, trying to give them the will to fight and the ability to fight is tough. My feeling all along was that if you wanted people to be motivated in the first place, they first had to be well trained. They not only had to be well trained, they also had to have decent equipment and to understand how to use it. Then you had to have leadership. All of those subjects are controversial in many respects. I was fortunate to be an older guy with a lot of experience. I had over six hundred hours in B-17s when we got to England—a lot more than anybody else in my group.

My experience was with the crews themselves, in training them. During the entire period that I was in England, I spent practically all of my time in training. Although there were a lot of people who were afraid, including myself from time to time, the people who did the best job in my opinion were those who were well trained and had tremendous confidence in themselves.

Early in the war, I can remember, a lot of people felt that they weren't going to make it. After briefings, when we had a few minutes to wait, some guy would say, "You know, I just don't believe I'm going to make it through this war." It's uncanny, but a lot of the guys who didn't make it had predicted that they wouldn't. I decided to claim that I wasn't going to get shot down and I worked toward that end. I tried to pass that same feeling to the rest of the troops.

The worst thing I could have done was to make a liar out of myself and get shot down. Well, that didn't worry me. But I did have a lot of missions early on, and that was a big help to me because somebody who'd survived a lot of missions had a certain amount of respect. As I said, I spent most of my time in training, not only with my squadron but also with the group.

Something else that helped me as I tried to motivate people was, meeting all of the senior people, and others, in the bomber command. It was mentioned that my crew had the privilege of taking General Eaker to the Casablanca Conference. That was right after he took command of the Eighth. It was for a prior meeting in December that I took Eaker and his whole staff down there, and I had an opportunity to be with them for three weeks. They were very nice to me and took good care of me. I enjoyed sitting around and listening to them talk.

I had a big advantage. I knew what I was fighting for. There were a lot of stories about fighting for home and country. And, in the big picture, that's important, but the real business of fighting boils down to this: You're fighting to save your own soul and your crew and your outfit. What motivates you is the people you're fighting with.

Overall, then, the key to motivation is preparation—of yourself first and then of those you're fighting with or flying with so that they

Training the Bomber Crews



With the sudden onset of war for the United States and the induction of millions of new recruits, the armed services stepped up training programs on an unprecedented scale. Deadly combat from formidable enemies required advanced aircraft and rigorously prepared air and ground crews. For those who manned and maintained the bombers, cooperation was essential. *Clockwise from top, right:* A seasoned aircrew grouping proudly around its Consolidated B-24 Liberator "somewhere in England"; a Douglas B-18—the first aircraft usually encountered stateside by air trainees; flying cadets receiving instruction in formation flying; a bombardier hitting his target in a practice run—two more bombs drop between his aircraft and the target "deck"; a student bombardier testing the supersensitive Norden bombsight; student navigators, loaded with equipment preparing to demonstrate their skill. Mathematics dominated the work of both navigators and bombardiers.

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can be good at their business. They must have confidence in themselves and have a leader that they can trust. I did my best to be one.

I have to tell you that it was a sad day for me when the war was over because I really enjoyed it. I stayed over there the whole time without any rest at home or any other relief. Early on, I got to fly a lot. Later on, I could only go on selected missions. So that was the toughest part of the war—sitting around waiting while the other guys were out fighting.

Gen. Poe: Well, in no small measure everybody at the table here could say that “the old man’s” been there. He’s up there today in many instances and may have been the number one factor in any kind of motivation at all. He told us what was going on and what to do.

Colonel Crockett, the role of fighters was key to the success of the deep penetration of Germany, and you paid for it. Some four thousand Eighth and Fifteenth Air Force fighters went down. They had skill and courage. However, black airmen and their support crews had “Jim Crow” to deal with as well. Could you tell us what effect this had on unit and individual combat performance?

Lt. Col. Crockett: In my case, I’d spent a couple of years in the field artillery, the blacks’ first field artillery in the regular Army. At that time, there were only the 24th and 25th Infantry Regiments and the 9th and 10th Cavalry Regiments.

I’d dropped out of school, out of junior college. I thought that I was the best math student in my high school and junior college up through differential equations and integral calculus. My math teacher went to the dean and principal and got me to teach classes for a couple of weeks. So that was a big plus. Everybody needs a little pat on the back now and then.

Going to the field artillery enabled me to put my math into practice. The lieutenants—in an all-black outfit with white officers—would pick me up on the weekends, and we’d go and work out all of the firing problems for the week. They’d just double check.

But, a private in 1940 was making \$21 per month. For my little blond lieutenant, the basic pay was \$125 a month. The Army Air Corps lured me in by placing a sign up in the order room that said, “Be a pilot, bombardier, and navigator and earn \$245 per month.” That got my attention.

I spent two years with the field artillery. Incidentally, I was a model soldier in my regiment. I was in the twelfth class at Tuskegee. But I’d read a book written by Generals Hap Arnold and Ira Eaker that mentioned that the wash-out rate for flying cadets was 75 percent. Since I bivouacked for a couple of years, I was properly motivated to be in the top 25 percent of my class. I was criticized for not going

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to the town of Tuskegee for six months, but I wasn't there to go to town. I had another mission.

General Benjamin Davis was in the first class that graduated on March 7, 1942. Two of the five people in that class are still living. One, Lem Custer is up in Hartford, Connecticut. The next class only had three people in it. I believed what I'd read. In my class, we moved up fifteen people who'd had experience in civilian or military life, to increase the people they were sending to primary training every four and a half weeks from twenty to thirty-five. We lost twenty of those thirty-five people in nine weeks in primary. So I put my nose a little closer to the grindstone because I wanted to make the program. I was in the twelfth class, out of almost a thousand blacks who went through Tuskegee; and, incidentally, leaving the field artillery, I was unaware of the fact that the Army Air Corps had said that blacks couldn't learn to fly, that they didn't have the courage to fight in combat.

So, after I arrived at Tuskegee, which was the only place blacks could go, a student, Yancy Williams, from Howard University, finally sued the War Department to allow blacks to get into the Army Air Corps after a lot of pressure by the black press and other people, including Eleanor Roosevelt. She came down and got a thirty-minute flight. After her ride she said, "I guess blacks *can* fly."

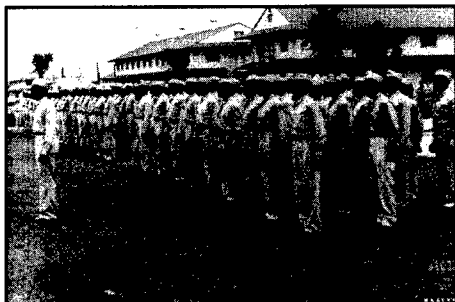
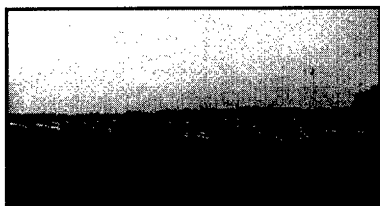
Tuskegee Institute had its own field, Moton Field. It had a contract with the Pentagon to furnish the entire primary flying course for all of the black cadets. We had about forty-five or fifty instructors. We lived on the campus and ate at the dining hall.

For basic and advanced training we went back to the air base. We had only white instructors, because there were no blacks in the military with any experience. I understand that the instructors were volunteers. My instructor was Captain Robert Boyd. He was a former airline pilot and base operations officer. He was very, very good. Most of the instructors, I think, were interested in the students.

Moton Field was designed for flying PT-17s. Then, you had basic PT-13s, AT-6s, and P-40s. That mix of traffic wasn't very good. It created safety hazards. We finally moved out to Shepherd's Field, and that was a real haven. We had the airfield to ourselves. We also had a gunnery place.

We trained in the P-40. Replacement pilots went overseas with forty hours of training—twenty hours of transition time and twenty hours of combat crew-type training. I finished in March 1943, just before the 99th Fighter Squadron was shipped to North Africa the next month. We finished just before the 99th left. The 100th Fighter Squadron, the 301st, and 302nd comprised the 332nd Fighter Group. I accumulated a lot of flying time. Before I went overseas in January 1944, I'd accumulated 145 hours in the P-40 and another 125 in the P-3, so I felt that I was pretty "red hot" when I hit Naples.

Creating a Legacy



Burdened by the stresses of racial prejudice and segregation, blacks who wished to become military aviators during World War II were trained apart, at Tuskegee Institute in Alabama. Commanded by Col. Benjamin Davis, Jr., Tuskegee airmen flew fighter and bomber escort missions with the Twelfth and Fifteenth Air Forces in North Africa and Europe. The much-decorated 332nd Fighter Group's "Redtail Angels" served with great distinction, never losing a bomber to enemy fire. *Clockwise from top, left:* Col. Davis receiving the Distinguished Flying Cross from his father, Brig. Gen. Benjamin Davis, Sr.; 332nd pilots gathered before a North American P-51 Mustang; Tuskegee cadets performing morning exercises; student aviators pondering navigational calculations; 332nd P-51s buzzing their home base; basic and advanced students briefed on the day's mission; AT-6 trainers at Tuskegee standing ready for practice runs.

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The 99th was attached to the 709th Fighter Group when we arrived in Naples and it had had good luck over Anzio. The Anzio beach-head was established on January 22nd while we were still on the high seas. On January 27th, I believe, the 99th shot down eight aircraft one day, and four or five on the next day. So it had very good luck. It was almost sent home from North Africa because it wasn't shooting down any aircraft, but it was on strafing and escort missions and didn't see any fighter aircraft.

As we flew into Naples, the outfit we relieved, around Salerno and Montecorvino, was the 81st Fighter Group. Fifty missions was the normal tour of duty, but I flew 107 missions in only four months. There were no black replacement pilots, and I continued to fly. We knew that we were part of an experiment and we, both pilots and ground crew personnel, weren't going to let it fail.

We moved to the Fifteenth Air Force. I was very happy to leave the Twelfth. We were flying a lot of coastal patrols. We'd fly three to five missions a day. And we'd sit one-, two-, or three-minutes alert in the airplane at Capodichino, a big dirt field. Once a flight took off, it was so dusty that the next one had to wait for five minutes. I remember taking off with sixteen P-39s abreast on training missions at Capodichino, all at one whack.

On the first of June, we transitioned to the P-47. Its short range restricted it to something like 430 miles from base. We couldn't even get to Budapest from the Adriatic. We only flew it for one month but *did* score some kills. We sank a German destroyer in Trieste Harbor with machine gun fire only. There was a question until gun camera film was processed and two fellows were given credit.

But, on the thirtieth of June, we flew our last mission in the P-47. Three days later, on the fourth of July, we went out fifty-four strong in the P-51 Mustang, my dream airplane. We normally carried a 75-gallon tank under each wing. We flew from southern France all the way around clockwise to Ploesti. I had three escort missions to Romania, Albania, and Greece.

I'd like to mention one mission where the pilots usually get most of the credit. On the twenty-fourth of March, General Twining wanted the Germans to know that he could hit Berlin from the south. I received a call in operations at half past ten that evening from Major Gleed, the group operations officer. He asked, "How many aircraft do you have equipped with the big tanks?" I said, "Three."

The missions were getting longer and longer. I'd already equipped my airplane. He canvassed all three squadrons and passed the information on to the ground personnel, some of whom went to Foggia, Italy, about forty miles distant and picked up some tanks. They were armed. They'd heard that there were 110-gallon tanks on a train going north. They held up the train in what they called "the Great Train

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Robbery." Some guys still don't talk about it. They took everything necessary, went back to base that night, and installed the 110-gallon tanks after removing the 75s from the aircraft. Some of the hardware didn't fit, but they had to make it fit because they had to take off at eight o'clock the next morning.

At approximately eight o'clock the next morning—for a max effort mission to we didn't know where—we had approximately six P-51 Mustangs equipped with 110-gallon tanks ready to go on this important mission. It was our longest mission, 800 miles from home base. We picked the bombers up at Brucks, about 630 miles from base going north. We took the 5th Bomb Wing, a B-17 wing, to the IP [initial point] at Berlin. There were four B-24 wings, plus the B-17 wing. One of the fighter units to offer cover at Berlin was late. We had the big tanks and elected to stay another thirty minutes.

To that date, two Me 262s had been shot down by American pilots. We shot down numbers three, four, and five. We lost one man and returned all the way home. I take my hat off to the ground personnel. I said the pilot gets all of the glory. But also now, in a fighter unit, the pilot's the only guy who gets shot down!

I flew two more missions after Berlin. As General Lyle said, the squadron command slowed me up in flying combat. Flying once a week or three times every two weeks isn't quite enough. You get a little skittish. So they finally let me come home.

But, we liked the combat record we had. We shot down and damaged 409 German aircraft, and 111 of those were out of the air. We paid the price, losing sixty-six pilots due to all causes, not just combat. Thirty-two who got shot down became prisoners of war. I believe most of those guys got back. I have a friend, Alex Jefferson, in Detroit. When he was shot down over southern France, he was treated as an officer and a gentleman, "better than I was treated back home," he said. I think my time is about up. Thank you very much.

Gen. Poe: Dr. Crosby was a senior navigator and a survivor of the 100th Heavy Bomb Group, that unit that was singled out for special attention by the Luftwaffe to earn the name "the Bloody 100th." Would you speculate as to why some units experienced hard luck, and some didn't?

Lt. Col. Crosby: I suppose I *am* the one to field this question because when I went overseas with the so-called "Bloody 100th," only 14 percent of the group I went with finished the war. The other 86 percent went down, and they went down in a hurry. I'll suggest that any one group gets hit not because of a vendetta against the Luftwaffe or the wheels-down story you've all heard. If you ever really want to get some research on that, read Martin Middlebrook's *The Schweinfurt-*

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Regensburg Mission and Edward Jablonski's *The Double Strike*. Members of this panel have already told me that several other groups, not just the 100th, were suspected of the so-called "surrender," and then shooting down the escort the Germans set out. There's just nothing to that. Actually, there *is* something to it, but a number of groups were involved.

But, the main thing is, I've talked to any number of German fighter pilots and leaders, and asked if they singled out the Bloody 100th, with the big square D on the tail. They'd never heard of the story. They told us that they were coming at us at a closing speed of several hundred miles per hour and they didn't have time to pick out an LP on a fuselage or a square D on a tail.

The question is: Was it possibly dumb bad luck that caused our group and some of the other groups to be hit rather badly? There was something to that. In retrospect, we can see that the Luftwaffe had many techniques for hitting us. Sometimes the best way for it to hit the Eighth was from the tail. It was hitting from the tail when the 100th was "Tail End Charlie" on the August 17th double strike on Schweinfurt and Regensburg, on to Africa for us, and we got hit.

I remember when Curtis LeMay was up in the front plane. We were, I think, Fireball Able that day, and he called, "Fireball Able, pull your group together." Jack Kidd, in the command seat, said, "We *are* together. This is all of us that there are!" So we felt good about that, but we got down.

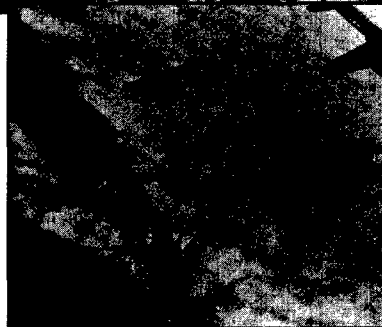
Then the Luftwaffe switched from tail-end attacks. It realized that the place to hit an Eighth Air Force formation was from the front. That was where the command pilot was; that was where the lead bombardier was; and that was where the lead navigator was. If you could knock out the leader, there'd be a real debacle, a real catastrophe.

So the Luftwaffe switched, as we apparently now know, around the first of October. Wouldn't you know it, the 100th, with me in one of the planes, was leading the whole Eighth Air Force on October 8th, and the Luftwaffe just knocked out our whole front end. We were one of the last big missions not led by the B-17G, which had, of course, the front target, the front double guns. Once the Luftwaffe realized that we weren't vulnerable from the nose, it stopped.

Then, I think, the real selection process began to be clear. That was (a) to hit the stragglers and (b) to hit the worst formation. I don't suggest that the 100th flew the worst formation, although there certainly have been plenty of comments about that for cause.

I'm going to demonstrate something here. How many veterans of the 100th Bomb Group are here? Raise your hands. Okay. And our historian, too. So all of the 100th, raise your hands. Apparently, some of us got through. Not very long ago, I ran into somebody with a big insignia. I said, "Gee, I'm glad to run into somebody from the Eighth."

Facing Aerial Combat



In the fierce struggle for air supremacy in Europe, particularly Germany, vanguard Eighth Air Force bomb groups such as the 100th, whose Boeing B-17 Flying Fortresses are pictured, *top*, in noted aviation artist Keith Ferris's painting, *Fortresses Engaged*, suffered grievous losses in early missions from anti-aircraft artillery and Focke-Wulf FW 190, *center, left*, and Messerschmitt Bf 109, *bottom, left*, fighters, the two best types in the enemy's arsenal. In early operations, Eighth aircrews were inexperienced and hurriedly trained. Crew replacement rates were appallingly high. Fighter-escort, when available, was valiant, but had only limited range. An Eighth Air Force Consolidated B-24 Liberator, *center, right*, is blasted apart on its way to the submarine yards of Kiel and Hamburg. A flaming Eighth Air Force B-17, *bottom, right*, is ripped from its formation over a synthetic oil plant in Merseberg.

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He looked at my little lapel pin and said, "I'm glad to see somebody from the 100th who's alive." The 100th always shows up at everything. Somebody once said, "Yeah, the 100th always sticks together." But then somebody else said, "Yeah, except during formation."

I'm about to suggest that there were several other groups that lost many more than we did, but they all lost one or two or three. When the 100th lost, it lost big. Only three of us really got to Africa. Some more finally trickled in. On the Bremen mission we lost six or eight. Our historian could tell you more. Over Berlin, we lost a batch. Over Ruhland we lost a batch. Over Münster, only one plane came back. In other words, when we lost, we lost big. A group can stand an attrition of one or two, because they've already got some new planes ready to go. When we *lost* a whole squadron at once, we *got* a whole squadron at once, and they'd be flying the very next day.

One of our most famous stories is about "the man who came to dinner." A fellow named Grenier didn't unload his bags. He went to the Officers' Club, went to bed, was awakened the next morning, and was shot down that day. He didn't even get to unpack his bags.

So, we got hit hard. Because of a kind of Hollywood glamour that the 100th perhaps was particularly notorious for, I think I learned to swagger, because you had to learn to swagger or you really weren't a member of the 100th. We had the nice, white scarves; we had 100th mission crushes, and I was never in Texas but, of course, I wore cowboy boots. When we were asked to go off formation after we got hit very badly one time, our group commander said, "The 100th never goes off ops." We *should* have gone off ops. We *should* have slowed down, learned formation, trained our crews, so that when we went up next time, we weren't clearly the new kids on the block.

It takes time to learn and, then, we finally got superb leaders. One of the miracles of the war for me was what two great group commanders, John Bennett and Thomas Jeffrey did. I'm sure almost of all you know both of them. When they took the 100th, they made it into a disciplined group.

John Bennett said, "I don't want new pilots to be fighter pilots, I want them to be bus drivers," and, as a navigator, I gloried in that because that's what I wanted. I wanted beady-eyed bus drivers holding single needle-width turns at 150 miles and really flying good formation. So I think it wasn't dumb luck. There was some part of fate involved. But I think the main thing is that our leaders knew at that time that good formation and really good air discipline made a group as safe as it could be.

Gen. Poe: Colonel Jefferson was one of over fifty thousand AAF personnel who were shot down over Europe and became prisoners-of-war [POWs]. As a former POW, what was your chief day-to-day con-

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cern in the camp, in keeping up your spirits? Also, since we both flew in Korea, I wonder what thoughts might have been in your mind—when you went north of the 38th parallel—of how you might have been treated had you been captured by the Chinese or North Koreans?

Col. Jefferson: I certainly hoped that would never happen. But if I may, I'd like to tell you about how I became a POW. I was commissioned a second lieutenant on the day after Pearl Harbor, at Lowry Field, in Denver, Colorado. The timing was accidental. I was immediately sent to MacDill Field, near Tampa, Florida, to the 29th Bomb Group. It had a few B-17s and B-24s and was commanded by Colonel Bob Travis. He soon became a brigadier general and I served under him at the squadron, group, and wing levels, establishing a bombing training program.

This meant that I sort of backed into the flying business unofficially. I "washed out" of pilot training class 41G, and I guess I've ever fully recovered from that. Most of us were sent home if we didn't get through pilot training, but I was sent to Lowry Field to the Air Force Technical Training School and trained in armament equipment maintenance. A few of us were also selected for training in the maintenance, operation, and calibration of the supersensitive Norden bombsight and related automatic flight control, or auto pilot, equipment.

To get this training we had to be investigated by the FBI. We weren't permitted to take notes and had to receive our instructions behind an eight-foot chain-link fence. In addition to bombsight maintenance and calibration routines, we learned all of the mathematics involved in the solution of the bombing problem. So when I arrived at MacDill Field, I was actually the only officer in the 29th Bomb Group who knew anything about the Norden bombsight or related auto pilot equipment. The Lowry armament course had also included dry-run practice bombing missions so that we could better understand the concerns of the bombardiers who'd be operating the equipment in the air.

At MacDill, I was busy at first checking out pilots of the 723rd Squadron in the adjustment and operation of the automatic flight control system. General Travis learned of this and asked me to come to his office and brief him. He explained that he had only a few pilots, copilots, and maintenance personnel and that he had no bombing capability within the 29th Bomb Group. He assigned me to train his enlisted bombsight maintenance personnel to function as bombardiers. He seemed not to notice the fact that I was a maintenance officer, not a rated flying officer. He wanted bombing capability within the group as soon as possible and since I knew how to bomb, he directed me to begin a bombardier training program immediately. I said, "Yes, Sir."

The 29th Bomb Group in January 1942 was given the task of forming, training, and sending to combat new bombardment groups.

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In June 1942, it was transferred from MacDill Field to Gowen Field, in Boise Idaho, where its task was accelerated. General Travis was assigned from the group to command the 15th Heavy Bomb Wing in Boise. He brought me to the wing headquarters and had me supervise the training of bombardiers, aerial gunners, and armament personnel. The program for which I'd been responsible in the 29th Bomb Group was instituted at bases all over northwestern United States, at Sioux City, Iowa, Spokane, Washington, Wendover, Utah, and a number of bases in between. The few dry-run practice missions we'd been required to fly in B-18s—I guess everyone here remembers B-18s—at Lowry Field had taught me how to bomb. So General Travis's request had put me, a non-rated ground officer, back in the flying business, training bombardiers. When they started arriving from the training command, they joined an already functioning, smoothly-running system and they went through it without a hitch.

During this period, General Travis was selected for a new assignment and Colonel Hugo Rush succeeded him at the 15th Bomb Wing. In a few months, Colonel Rush was selected to go to Italy to command the 47th Bomb Wing, a new organization. I was one of the officers assigned to go with him. There, I was sent to the nearby 450th Bomb Group, where I could get some combat time. Colonel Mills, the group commander, told me that I couldn't be assigned to fly combat because I had no aeronautical rating. I insisted strongly that I *was* qualified to fly. There I was, among dozens people whose training I'd supervised and inspected. I just *couldn't* be denied permission to fly. For two years we'd been forming, training, inspecting, and certifying as combat-ready, twenty-four hours a day, an endless flow of new heavy bombardment groups. Most groups made it but some didn't. For example, we held back the 100th Bomb Group for additional training.

Lt. Col. Crosby: We never forgave him.

Col. Jefferson: Colonel Mills said: "All right, we'll hold a flying evaluation board. If we find you qualified, you may fly, but, we can't order you to fly because you have no aeronautical rating. You'll have to volunteer." I was found qualified and I volunteered.

My first mission was the first attack of the war on Bucharest and my second the next day was the first high-level attack on Ploesti. I was in the "Tail-End Charlie" aircraft in the lower left-hand box—in the lowest and farthest back aircraft of any in the 450th formation. The second mission almost turned out to be my last. Just after "bombs away," a fighter on our tail started firing. From the bombardier's window I could see his tracers coming through dead center and inches below me. The group lost six aircraft that day, but Lieutenant Barbetti got us home on three engines.

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From then on, I was the squadron bombardier and flew as a lead bombardier. I flew half a tour of combat without flying pay or aeronautical rating. I applied for my rating, which I learned could be issued by Fifteenth Air Force Headquarters, since we were in a combat theater. General Rush, 47th Bomb Wing commander, hand-carried my request to General Twining, Fifteenth Air Force commander, who issued me a rating based on my combat record. By the time my aeronautical rating as a bombardier was approved, I already had the Distinguished Flying Cross; but my flight orders weren't made retroactive, so I lost the hazard pay for the combat I'd already flown. I never got it.

Now, to the POW experience. We were shot down on my thirty-seventh mission. To complete a combat tour, we had to fly fifty missions. Then, we became eligible to return to the States. I had only thirteen missions to go and was optimistic about finishing them and going home, but that was not to be. Our target that day was the Winterhofen oil storage and refinery area, along the Danube River in the north-eastern sector of Vienna. The 450th Bomb Group was leading the attack, and I was the lead bombardier. We were shot down by flak. Three crew members were killed—our radio operator, one of our waist gunners, and our tail gunner.

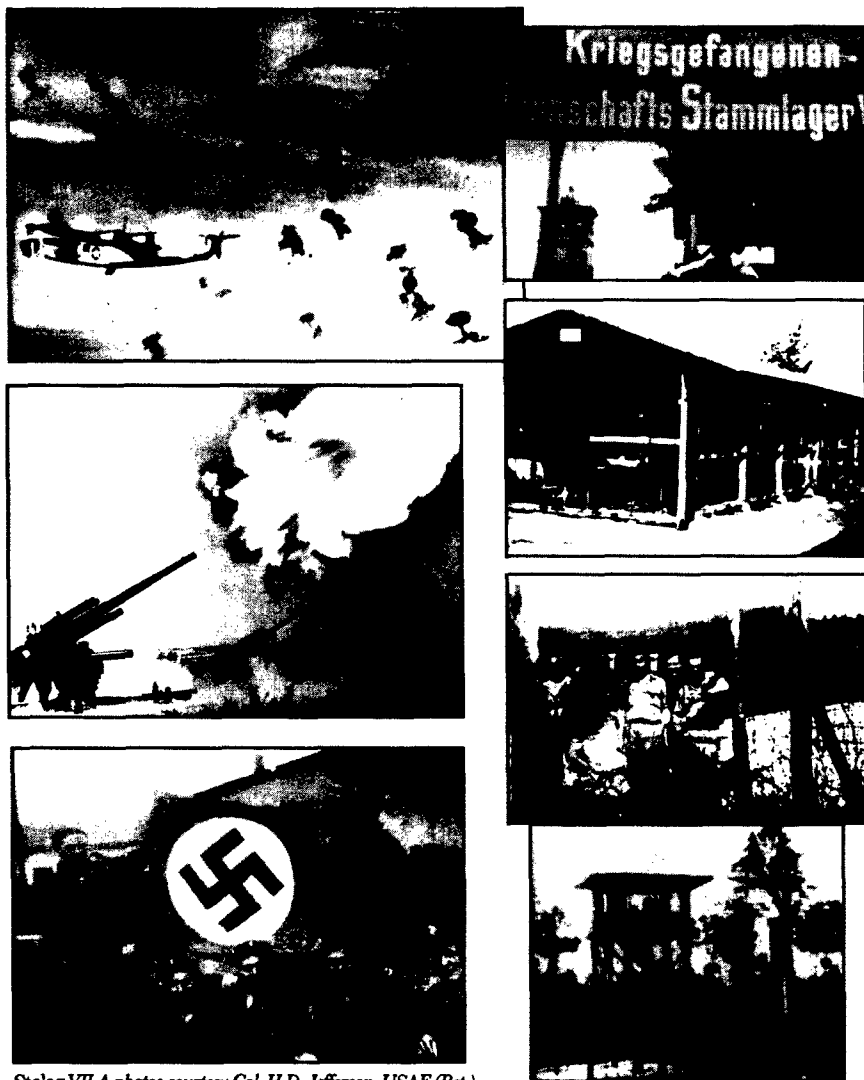
I salvoed the bombs and then I bailed out and landed northeast of Vienna, short of the target area. We'd been told to delay our parachute openings because German fighters would strafe high-hanging chutes and just blow defenseless men out of their harnesses. So I was fairly close to the ground when I opened my chute. I don't remember hitting the ground.

When I regained consciousness, I discovered that I'd landed in a long, flat sugar-beet field between two flak batteries, but I couldn't remember how I'd gotten there or what had happened to me. Apparently I'd had a severe concussion. I suffered terrible headaches for a number of days. German soldiers were there with guns pointed at me, and I put up my hands.

The first thing I realized was that I knew almost nothing about being a POW. We'd lacked any escape and evasion or, as it's now called, survival training. None existed until after World War II. We knew very little about the Geneva Convention and were unprepared in a general sense about possible treatment or interrogation by the enemy or the tricks he might use to get information. The survival briefing the day we were shot down consisted of one statement: "If you can't make it back, head for Czechoslovakia; it's rumored there are Partisans there." We couldn't do much with that.

I was taken to a small antiaircraft battery command post, where I was questioned. I gave only my name, rank, and serial number and wasn't pressed for any more information at that point. Almost immediately, I was taken to a Luftwaffe base northeast of Vienna, where I

Surviving Captivity



Stalag VII-A photos courtesy Col. H.D. Jefferson, USAF (Ret.)

Airmen who survived being shot down in combat and seized by the enemy had to survive being prisoners of war. American and Allied POWs suffered terrible privation at the hands of guards who paid little heed to the Geneva Convention's provisions for the treatment of captives. In Europe, a Fifteenth Air Force Consolidated B-24, *top, left*, faces a flak-filled sky. Exploding anti-aircraft shells, delivered by German 88-millimeter flak guns, *center, left*, brought down thousands of aircraft and created thousands of POWs. Pictured are Americans at *Stalag VII-A* in Germany. *Clockwise from top, right, to bottom, left*: The main gate; one of several gun-equipped watchtowers, constant reminders to *kriegsgefangenen*—POWs—of danger and confinement (*stalag* is an abbreviation of *stammlager*, main camp); a latrine building whose wooden siding has been stripped off by POWs and burned for warmth and cooking fuel; just-liberated prisoners posing behind multiple thicknesses of barbed wire at the perimeter of the camp; other prisoners displaying a swastika-decorated flag as a souvenir.

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found some members of our crew being detained. We were subjected to further questioning and given the only food we'd had since our capture. After about three days, we were taken into Vienna in the middle of the night and at a major railway station put on a train for Budapest, where we were placed in a city prison. There, in October 1944, I saw prisoners with the yellow Star of David on their clothing.

Very soon, you begin to learn what it's going to be like to be a POW. By the end of the first day, you're hungry, probably for the first time in your life. After two or three days, you haven't shaved—no disrespect to people who don't shave.

By the end of the first week, you can't stand your own company, because you don't know when, if ever, you're going to get a bath or a shower. You have no idea of what your treatment by the enemy will be or of how long your POW status may last. You have almost no hope of escape, so you can become deeply discouraged and depressed.

In late October, the Russians made an unexpected advance toward Budapest. We could hear the fighting. The Germans moved us out, and we ended up riding boxcars all the way from Budapest to *Stalagluft III* at Sagan, which was then in Germany but is now in Poland. When we got to the camp, we were assigned to the north compound. It housed mostly British prisoners, but a number of Americans were there, too. Americans who'd been there prior to "the Great Escape" had been moved out to another compound.

Overwhelmingly, as new prisoners, we were concerned with food. By the time we got to *Stalagluft III*, we were already starving. We'd had almost no food after leaving Budapest. We were jammed into boxcars with no facilities whatsoever, no open doors, no food, no water, nothing. That created sanitation problems that I won't describe, but that you wouldn't believe. When we entered the compound, I met experienced POWs. I didn't realize it at first, but I had things they wanted—an A-2 flight jacket, a good pair of shoes, a watch, a pen, and a sweater. Within the first two or three days, people were tempting me with food, but they always wanted something I had. To those who hounded me, I finally said: "You can have what I have, but you'll have to wait 'til I don't need it any more. Then, you may take it off my carcass. 'Til then, it's mine. Don't bother me any more." And they didn't.

The Germans had taken most of my uniform items, except my A-2 jacket and my shoes. Many POWs didn't have shoes that fit—a special disadvantage on forced marches. We couldn't keep clean, had no way to shave or bathe. We couldn't wash our clothes because the weather was cold and we had to wait until they dried before we could put them back on. Frequently, we'd take them off to shake the insects out of them. Also, we were short of bedding. We slept on "mattresses" that were body bags stuffed with wood shavings and shaped like European-style coffins. We estimated that our diet equaled one-sixteenth of

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a Red Cross parcel per day per man. I was the senior American officer in our building; the British called it a "block." There were twelve of us in a room and some always appeared too eager to grab the largest portion of food. So we made a deck of cards. Each card had a name on it. No one touched any food 'til the cards were shuffled and put down on the table. Then, each man went to the food where his name came up. The Germans gave us three thin slices of dark bread per day and something we called "green death soup" almost every day. It was made from a sort of fodder and was always full of dead insects. The bread was partly sawdust; it caused digestive and related problems.

For Christmas 1944, the Germans gave us half an animal for dinner. Its head was gone and its feet and tail were gone. A POW who'd worked in his father's butcher shop concluded that it was half a dog, cut along the backbone, fore to aft. We ate the dog and kept the bones. We made soup from them several times until they disintegrated. Sometimes, we were given small, withered potatoes. We always ate the potato skins. We were told later that they were important to our survival because of their vitamin B content. When we were lucky enough to get a Red Cross parcel containing a box of prunes, we always saved and cracked their seeds and ate the pits that were inside them. By the end of January 1945, most of us had lost around forty pounds.

There was no real disciplinary problem through all of this. The disciplinary training we'd had as part of our military indoctrination came to our rescue. When someone started hanging around his bunk too much, we got him out to do "circuits," as the British said, around the area. Keeping active always seemed to help.

In late January 1945, the Russian advance drew close enough to *Stalagluft III* that we could hear the fighting. After several days of rumors, the Germans forced us out of the camp into the bitter cold of a blizzard on a march to the west. It started in the middle of the night on January 29, 1945, and it was an awful ordeal for everyone. Newspapers in the states labeled it "the Atrocity March." We got frostbitten feet, hands, and faces. We had no food and had to eat snow to get water. There was only occasional shelter for over ten thousand POWs. Our clothing was completely inadequate against the weather.

A few civilians along the way were helpful. They set out cans of water and pieces of bread. When we stayed in a town or a village, the Germans put a guard around it and got us into available buildings.

Townspeople and villagers who gave us food wanted notes from us explaining to the advancing American forces that they'd been kind to POWs. The march ended in the town of Spremberg, where we were led to a concrete railroad freight-loading ramp late in the afternoon. We had to spend the whole night outside in near-zero temperatures, awaiting a train of boxcars. We had no protection except our clothing.

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I actually wondered if I might freeze to death. The next morning when the train arrived, we were herded into boxcars with almost no room to sit or stretch our legs, again with no food, water, or sanitation arrangements.

After a brutal ride of several days, during which we had to wait for about twenty-four hours on a railroad siding adjacent to a humping yard, we arrived late at night at Nuremberg and *Stalag XIII-D*. There, conditions were much worse. Our buildings were infested with body insects. To heat our meager food supply we stripped most of the wooden siding off the latrine buildings between our barracks and split it up for fuel. At *Stalagluft III* we'd been permitted to go between surrounding barbed wire fences and dig stumps for fuel.

By then, we'd developed symptoms of malnutrition. I lost night vision almost completely from lack of vitamins. If I sat in one position for more than five minutes, the large muscles of my thighs, hips, back, and shoulders would "go to sleep" and get numb. I awoke each morning with my arms numb to the shoulders and my hands drawn up this way. I'd start each day by working the numbness and stiffness out of my fingers, hands, and arms, trying to get them to function normally.

By April 1945, the Allies were advancing from the west toward *Stalag XIII-D* at Nuremberg. During April, the Germans marched us from *Stalag XIII-D* to *Stalag VII-A* near Moosburg. We heard that they planned to march us to Berchtesgaden and hold us as hostages.

By the time we'd walked from Nuremberg to Moosburg, the weather was somewhat warmer. The cold had been very punishing all winter. At *Stalag VII-A*, there were no buildings available for us, so we were crowded into large-area tents and had to sleep on the ground. When the rain came down outside, the water came up inside. There, our living conditions were the worst we'd faced. We had very limited food distribution; but I soon found that I could trade the few items I'd saved from Red Cross parcels, such as tobacco and cigarettes, for food with the German guards. In one transaction, I acquired half a gallon of wheat in whole grains, just as it had been threshed. We boiled the grain 'til it was soft. We could feel the nourishment going through our bodies as we ate. The hope that liberation was near kept us going.

And then on April 29, 1945, it happened. The front lines passed over us, and General George Patton's 14th Armored Division liberated us. An American tank flattened the main gate as it drove into the camp. Some POWs cried as they saw the swastika come down and the Stars and Stripes go up over Moosburg. General Patton visited us the next day and gave a short, encouraging speech.

Between liberation and the arrival of rescue planes about a week later, our problems changed as some of our men became a little hard to control and had to be protected from themselves. For example, they

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suddenly became avid souvenir hunters. They found such items as live German grenades and ammunition belts with explosive bullets and brought them right into our temporary shelter. So we enforced stringent rules to avoid tragic accidents. One man brought in a belt of 20-millimeter German aircraft cannon ammunition and was pounding on the ends of the bullets, trying to remove individual rounds. He was ordered to leave and told that if he wanted to kill himself, he should do so outside. Several men found and brought in live grenades, which we called "potato mashers." The shape suggested the name. A potato masher was a rounded, metal-encased explosive charge on the end of a 10-inch wooden handle. The men who found them were told immediately to stop such hazardous activities. My training in armament, ammunition, and explosives qualified me to inform them of the dangers to which they were subjecting themselves and others.

All in all, the experiences of some fifty thousand POWs, while varying in an infinite number of details, were characterized by an unrelenting grimness. The loss of freedom and having to live at the point of a gun created stresses and required psychological adjustments that were different and difficult. The searchlights, the armed guards in their observation towers and with their dogs on patrol, and the barbed wire enclosures turned the POW's war into a fight to survive. Also, the continuing starvation, the loss of weight, and the inescapable cold produced a reaction that was common to all POWs—a determination to beat the enemy by surviving. But, I think that not one of the thousands of POWs who suffered this ordeal has ever been or ever will be quite the same as he was before.

Gen. Poe: General Potts, at the height of the recent controversy [the *Enola Gay* exhibit at the Smithsonian Institution, which many veterans and military historians believed was too sympathetic toward Japan's militarist government]—I'm moving into some of the folks' area for the following section—at the height of the recent controversy about the *Enola Gay*, a very senior person at the [National Air and Space] museum asked me, "Why in the world do I get this hubbub from Eighth Air Force people? They were in Europe."

I wonder if we might ask you for your thoughts on that particular subject, which will then carry us over to the next session.

Gen. Potts: Let me give a little history that I believe will enable you to place in context what I'm going to say. When I graduated from flying school, I was assigned to fly O-52s with the U.S. Army training observers. Later, when I was assigned to the first B-24 Liberator group, I was overjoyed. Those of you who've flown the O-52 recognize that it was not only obsolete, it was also dangerous to fly. Now, unlike General Lyle, I had only nineteen hours when I was checked out as an

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airplane commander, but I had a wonderful group commander named Ted Timberlake. We trained in the B-24 Liberator and went to Europe as the first B-24 group to go from the Eighth Air Force.

I was fortunate in that I served in practically every kind of a job you can have as an engineering officer. I was an airplane commander, squadron operations officer, squadron commander, group operations officer, group commander, wing chief of staff, and group commander. Finally, I was sent down to Eighth Air Force Headquarters to be on the planning staff.

Nobody down there knew anything about the B-24 Liberator, so I was able to demonstrate to them that they could better utilize the airplane, get better accuracy and fewer losses, by employing the B-24 at a lower altitude than they'd been employing it. I'm pleased to say that while I was there as the director of bomb operations, bombing accuracy improved dramatically.

I'd like to tell you about an amusing experience I had when I was a group commander. We had an all-out maximum effort mission. I was up in the tower on this particular day and not flying on the mission, and a sergeant came over and said, "General Spaatz wants to speak to you." Well, here I am at a group level. I've got a wing commander over me, a division commander over me, an Eighth Air Force commander over me, and then General Spaatz. So I thought somebody was being smart and pulling my leg. But I went to the phone and, lo and behold, a voice said, "Potts, this is Spaatz. Now, I'm down here with General Doolittle and I see you haven't gotten your airplanes off." I'd put a hold on because we were having a little snowstorm. I said, "That's right, General, but I do assure you, as soon as this flurry passes, we'll get off and we'll be in our proper places as we go out over the North Sea." He said, "Well, Potts, let me tell you something. It's not snowing down here. Now, get the God-damned planes off." His mind-set was worth knowing. I *did* get the planes off and we *did* bomb the targets.

After World War II, I was put on something called the U.S. Strategic Bombing Survey in Europe, and then we went out to the Pacific. I've been asked to comment on [the *Enola Gay*] controversy. I studied operations in the Pacific in Japan, the bombing of Japan and, of course, in particular, the use of the atomic bombs. And so I feel that I have some qualification from that experience, plus the fact that, although I'm not a historian, I trained as a lawyer. I think I understand what's relevant and what's not. I'm a student of history.

I'd like to point out several factors that some "revisionist" historians seem to have either overlooked or not given proper weight to. First of all, it's true that President Truman was briefed by bombing survey officials from Europe that we could end the war in Japan without invading, just by continuing with bombing operations. The Eighth Air Force was due to be deployed out there in September 1945 and a

Ending the War



War's end came for Japan's intransigent leaders in August 1945, after not one, but two, atomic bombs had to be dropped on their homeland over the cities of, first, Hiroshima and, then, Nagasaki. ***Clockwise from top, left:*** The second atomic explosion towering over Nagasaki; *Enola Gay*, a Boeing B-29 Superfortress of the 509th Composite Group, returning to its Tinian Island base after delivering the bomb to Hiroshima on August 6 (a companion B-29, *Bock's Car*, bombed Nagasaki.); Hiroshima days after the atomic blast; the city of Tokyo glowing through the darkness of a nighttime incendiary raid in May 1945; a formation of long-range B-29s unloading a blizzard of bombs in a daytime raid during the same month; a Japanese military representative signing formal surrender documents in ceremonies on board the USS *Missouri*, September 2, 1945.

The Air War in Europe

mighty force of the existing air forces, plus, the Eighth would have wreaked absolute devastation on Japan. As a matter of fact, if we hadn't invaded and they hadn't surrendered, and we hadn't dropped the atomic bombs, Japan would have been absolutely destroyed from one end to the other, and its devastation would have been a lot greater than it was through the dropping of the atomic bombs. That tends to get overlooked. In other words, if the war had continued and we had continued bombing, we would have destroyed everything that moved on the face of Japan. That's item one.

Item two: The *kamikaze* corps had been formed with over a thousand airplanes and with pilots ready to attack our ships and landing craft if we invaded. We knew from battles on Iwo Jima and Okinawa how ruinous that could be. We lost thirty-seven ships just in the prelude, getting warmed up for the invasion.

So I think that the people who criticize President Truman for making that decision aren't looking at the relevant facts. Speaking of relevant facts, there's a lot of talk about the fact that Japan was ready to surrender and *would* have surrendered if we hadn't dropped the atomic bombs. At the final conference that the Emperor held with his advisors, in equal numbers military and civilian, they split right along those lines as to whether they should or shouldn't surrender. It was, in the end, the Emperor's decision that forced Japan to surrender. Even so, his military leaders resisted his decision and came pretty near to pulling off a military coup. His two chief military leaders both committed *harakiri* because they were so disgraced.

When we asked the Japanese, "Suppose we hadn't invaded; suppose we'd just stood off and bombed you from the air," they were horrified. The military leaders of Japan were welcoming an invasion. They wanted to fight to the death and, in effect, commit mass suicide to prove how glorious they were in their defeat.

A great deal of discussion on the subject has gotten off on the wrong track, and I'm absolutely convinced that the decision to drop the bombs was correct and that it hastened the end of the war, brought it about despite the opposition of the Japanese military. If we hadn't had that shock treatment, we might well have been sitting there, bombing and then invading, and we'd have lost hundreds of thousands of Americans, and millions of Japanese would surely have died. That's my read on it.

Gen. Poe: That's a very timely comment. We've got some very special people here today. Our debt to them and the nation's debt to them and their comrades in arms cannot be measured. Let's have one more hand for them. Thanks very much, to everybody.

**National Day of Recognition
for
United States Army Air Forces
Veterans of World War II**

***Reflections
on the
Air War in the Pacific***

Panelists

Gen. Bernard A. Schriever, USAF, retired
Maj. Gen. John R. Alison, USAF, retired
Maj. Gen. John P. Henebry, USAF, retired
Col. Edwin A. Loberg, USAF, retired
Lt. Col. Donald S. Lopez, USA, retired

Introductions

Dr. Richard P. Hallion

Overview

Mr. William T. Y'Blood

The Air War in the Pacific

Dr. Hallion: That was a very fine session. General Poe, yours is a very tough act to follow. We have another group of extraordinarily interesting and very accomplished individuals. They should, I think, make the panel on the Pacific War of equal interest to you.

The air war in the Pacific was very different from the air war in Europe, and we'll be hearing about it in detail in a few minutes from Tom Y'Blood of the Air Force History Support Office. What I've learned looking at the Pacific War is that, to a very great degree, it was about the projection of three-dimensional power against two-dimensional forces. The fight against Japan basically involved the projection of air and submarine power against Japanese surface forces operating in the Pacific. Indeed, one can look at the island campaign there as an effort to seize bases from which to project three-dimensional power. The Pacific War was also of tremendous scope, ranging from India into Central Asia, all the way across to the Hawaiian Islands and, at times, given our anti-submarine patrols, the American Pacific coast itself.

As we did in the first session, we'll start with an overview by one of our historians in the Air Force History Support Office, Tom Y'Blood, who's very interesting in his own right. He started out in the bomber business. From 1960 to 1966, he flew B-, EB-, and RB-47s with the U.S. Air Force and then was an airline pilot for more than eighteen years. He's accumulated over eleven thousand hours of flying time and has written several official histories, including two volumes on U.S. Air Force operations during Operation DESERT SHIELD-DESERT STORM.

He's presently writing the concluding chapters of the Air Force's Fiftieth Anniversary history, which we'll publish in 1997, and has written a number of very fine commercially published books, mostly dealing with naval history. Tom, if you come up here, we can launch.

Mr. Y'Blood: Thank you, Dr. Hallion, members of the panel, ladies and gentlemen.

On December 7, 1941, the U.S. Army Air Corps had fewer than 300,000 personnel and some 10,000 aircraft, of which only 3,000 were considered combat types. By war's end, on September 2, 1945, the U.S. Army Air Forces totalled 2.25 million men and women and 63,700 airplanes, including over 41,000 combat types. It was the greatest air force the world has known, but its ascent into the sparkling skies of victory began under oily, black clouds at Pearl Harbor. The attack there seemed a great tactical success for the Japanese, but it proved a disastrous strategic blunder. The U.S. Navy's carriers weren't destroyed. The vital tank farm wasn't even touched. Perhaps more important, the attack brought out in the American people the steely resolve: "Now that we're in it, we're going to finish it." And they did.

At Pearl Harbor, our Army and Navy planes were nearly wiped out, yet a handful of airmen got airborne to put up a fight. Leading the

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way was George Welch, who shot down four of the ten enemy planes destroyed that day by American fighters.

There was pretty much the same dismal story in the Philippines, where it was early in the morning of December 8th when Pearl Harbor was attacked. Word of what had happened soon reached the islands, but, for reasons that remain controversial, the defenders there were as unprepared as their comrades in Hawaii. The 316-aircraft-strong Far East Air Force was decimated and, by mid-December, only eleven of an original thirty-five B-17s survived to escape to Australia. The first few months of 1942 saw an unbroken string of disasters for the Americans and their Allies, as the Japanese pushed south and east.

During this time, some airmen became household names to an American populace starved for good news. Over Luzon, Colin Kelly sacrificed his life holding his mortally wounded B-17 aloft until his crew could bail out, and "Buzz" Wagner shot down five enemy planes to become the first American ace of the war. A flying unit also gained some attention. Its chief was a former Air Corps officer named Claire Chennault who'd gone to China to advise Chiang Kai-Shek on military aviation. The unit was the American Volunteer Group, the AVG, better known, of course, as "the Flying Tigers."

They saw action only briefly, between December 1941 and July 1942, but during that spell, they wrote a shining chapter of innovation and bravery. After the unit disbanded, its survivors joined the 23rd Fighter Group. It later became part of the Fourteenth Air Force under Major General Claire Chennault—not a bad promotion for one who'd retired as a captain. Under his leadership, the Fourteenth became a dangerous, pesky foe to the Japanese in China and Southeast Asia.

In the meantime, on April 18, 1942, Jimmy Doolittle led sixteen B-25s off the deck of the aircraft carrier *Hornet* to bomb Tokyo and other Japanese cities. Their dramatic raid raised morale at home but had a much more profound effect on the war than the little material damage it inflicted. Japanese military leaders were embarrassed and infuriated, but the raid was a catalyst for another of their attempts to expand the empire's defensive perimeter. The Japanese navy had long urged an attack on the island of Midway. The Japanese army, which had rejected the idea, was stung by Doolittle's impudence and, finally, agreed that Midway had to be taken.

Subsequent action resulted in the destruction of the major portion of the Japanese carrier fleet and its most skilled flyers. Although Japan continued to advance briefly, the tide now turned, as the United States prepared to go on the offensive.

Until that time, the Japanese navy had been contemptuous of the AAF's high-level bombing of ships. For example, during the Battle of the Eastern Solomons, a destroyer captain had his ship dead in the water as he picked up survivors of a ship that had been sunk. When

The Air War in the Pacific

several B-17s appeared overhead, the captain ignored them and continued working until several bombs smashed into his ship and sent it to the bottom. As he was fished, spluttering and waterlogged from the ocean, he conceded that even B-17s could make a hit once in a while.

But George Kenney and his Fifth Air Force in the South Pacific soon made Japan respect the efficacy of AAF planes against ships by using both skip bombing and low-altitude delivery techniques. Also, Kenney's technical expert, the legendary Paul "Pappy" Gunn and, a North American aviation "tech rep," Jack Fox, came up with modifications that increased the forward firing armament of both B-25s and A-20s, making them deadly and efficient strafers.

In March 1943, Kenney unleashed his forces against an enemy convoy steaming across the Bismarck Sea toward New Guinea. In the ensuing battle, AAF and Australian planes sank twelve of the convoy's sixteen ships and killed about half of the six thousand troops on board. Japan never again attempted to send a convoy to New Guinea.

Kenney was truly blessed with outstanding fighter pilots. Three of his best received the medal of honor, but they didn't survive the war. Neal Kirby scored twenty-two victories before being killed at Wewak. Tommy McGuire bagged thirty-eight planes before spinning in during the type of fight he warned newcomers to avoid—a low-altitude, turning, heavyweight battle. Dick Bong, America's leading ace of the war, had forty victories. He survived combat, only to die fifty years ago yesterday in the United States, on a routine acceptance flight of one of the AAF's new jets, the P-80.

The Fifth wasn't the only air force operating in the South Pacific. Led initially by a future U.S. Air Force Chief of Staff, Major General Nathan Twining, the Thirteenth Air Force or "Jungle Air Force," as its men called it, never received the acclaim accorded the Fifth, but its planes were involved in one of the most remarkable events of the war.

American codebreakers learned that the architect of the attack on Pearl Harbor and one of Japan's greatest heroes, Admiral Isoroku Yamamoto, was going to make an inspection trip to Bougainville in the northern Solomons. The codebreakers knew his timetable and that he was known to be exceptionally punctual. An aerial ambush was authorized. Exactly one year after the Doolittle raid, on April 18, 1943, sixteen P-38s met Yamamoto's entourage precisely at the place and time called for in his schedule. Four P-38s designated as the attack section shot down the two bombers carrying Yamamoto's party, as well as three escorting fighters. Yamamoto's loss was devastating to Japan.

The Thirteenth Air Force eventually joined the Fifth Air Force in the Southwest Pacific and continued its specialty, long-range bombing, particularly to such distant targets as Balikpapan on the island of Borneo. Until the B-29 attacks on Japan, the B-24 raids were among the longest combat missions of the war.

Reflections and Remembrances

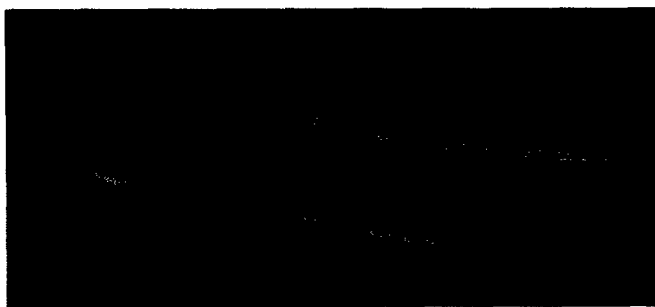
Four other American air forces flew in the Pacific and Southeast Asia. The Seventh Air Force, commanded initially by Major General Clarence L. Tinker, rose from the ashes of the old Hawaiian Air Force. Tinker's time in command was distressingly short, for his B-24 disappeared during a raid on Wake Island immediately following the Battle of Midway.

Tinker was just one of the many—too many—airmen who vanished over the ocean or into the jungles of that part of the world. Far more than in either the European or the Mediterranean areas, operations in the Pacific placed a premium on navigational skills. Few good landmarks existed, let alone navigational aids, and there was a lot of ocean to fly over. There were also thunderstorms and typhoons in the Pacific, williwaws in the Aleutians, and atrocious weather over the Himalayas. Aircrews in these regions were put through some of the most arduous and demanding flying of the war.

The men of the Seventh Air Force claimed they were just moving from “one damned island after another,” and it was true. Their path across the Central Pacific usually brought them to bases after enemy air power had been beaten down. But the Seventh wasn't just cleaning up after the Navy and the Marines. Its air units were heavily involved in close air support of ground troops, bombing missions to keep bypassed Japanese garrisons in check, and interceptions of enemy planes attempting to attack new American beachheads.

From Iwo Jima and Okinawa, the Seventh flew both bomber and fighter strikes against the home islands. Then, on August 13, 1945, one of its pilots, Oscar Perdomo, shot down five enemy planes over Korea, becoming the last fighter ace of the war.

Lesser-known air forces operating against Japan were the Tenth and the Eleventh. In the Aleutians, the Eleventh Air Force contended not only with the enemy but with abominable weather as well. The



Boeing B-29 Superfortresses. At first from India and China, and, more successfully, from the Mariana Islands, B-29s, with their great range, size, and carrying capacity, struck at imperial Japan. In punishing firebombing attacks, they weakened it. After delivering the atomic bombs, they forced its surrender.

The Air War in the Pacific

smallest of the AAF's combat air forces, the Eleventh, found itself fighting a backwater war. Nevertheless, after Doolittle and his raiders, the Eleventh made the first strikes directly at Japan. From the summer of 1943 until the end of the war, the Eleventh attacked targets in the northernmost islands of Japan, the Kuriles. Although small, these raids kept the enemy worried that an American attack from the Aleutians was always possible.

The Tenth Air Force was based in India and Burma, where it was hot, both on the ground and in the air. The Tenth, whose aircraft ranged across the region, attacking the enemy from eastern India to Bangkok, was also the home of two truly unique organizations, the 1st and 2nd Air Commando Groups, forerunners of today's Air Force Special Operations Command and of the composite wing concept. General Alison, who's here with us today, has very intimate knowledge of the 1st Air Commandos.

It was in the realm of supply that the Tenth shone. The air supply route across the Himalayas from India to China was called "the Hump," and it was the Tenth's job to keep the route working. The aircrews flying this dangerous course didn't shoot guns or drop bombs, but through heroic effort and sacrifice, they enabled the troops receiving the supplies they delivered to do so. Many courageous aircrews were lost flying the Hump.

The youngest of the Pacific Air Forces was the Twentieth, activated in April 1944. Unlike those of the other numbered air forces, its commander was far removed from the combat arena. The Joint Chiefs of Staff held operational control of the Twentieth, but the executive agent and its actual commander was General Hap Arnold.

Defining the Twentieth's goal, the strategic bombing of Japan by B-29s so as to bring the war to a close, was simple; reaching it wasn't. XX Bomber Command was initially based in India and China, partly to show support for Chiang Kai-Shek, but also because, at the time, bases in those countries were closest to Japan. Unfortunately, operations in China had to be halted because of tremendous supply difficulties as well as the inability of the B-29s to reach important targets on the home islands.

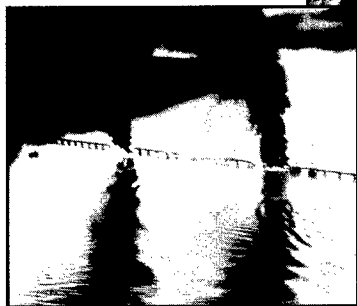
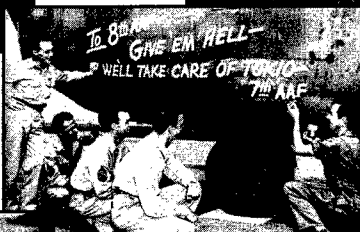
In early 1945, XX Bomber Command was moved to the Mariana Islands to join its sister outfit, XXI Bomber Command, which had begun attacking Japan in November 1944. With these two organizations joined, the bombing campaign increased and intensified.

As it did so, a member of the Twentieth became the force's only Medal of Honor recipient. Staff Sergeant Henry "Red" Irwin was dropping phosphorous smoke bombs from his B-29 when one of them blew up in its launch chute. The burning bomb shot back into the plane, mutilated Irwin's face and blinded him. Phosphorus smoke filled up the plane, threatening to set it on fire. Disregarding his terrible

The U.S. Army Air Forces in the Skies over Asia

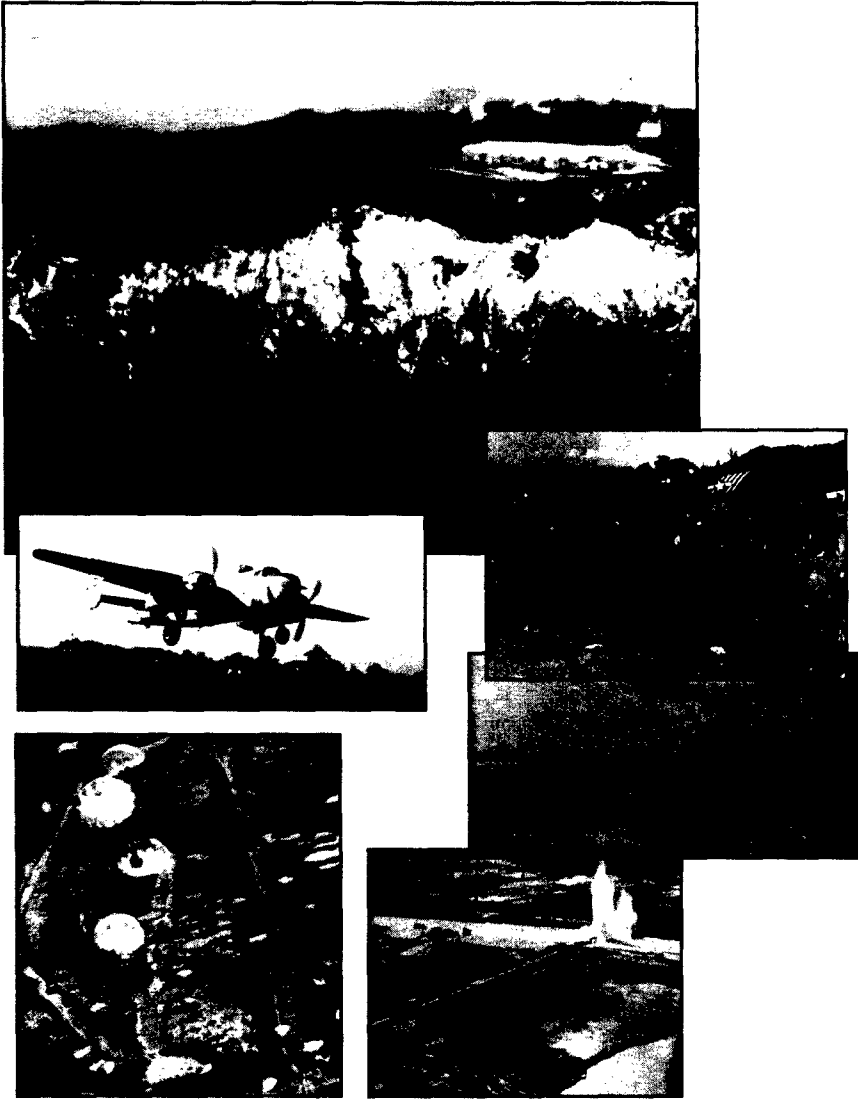


As the Allies followed a "Europe First" war fighting strategy, the U.S. Army Air Forces in the Pacific held fast and took on, at great cost, ruthless and, at first, successful imperialist Japan. In far-flung island operations the Fifth, Seventh, and Thirteenth Air Forces faced well entrenched units. The Fifth Air Force stopped enemy advances in Australia, Java, New Guinea, and the Bismarck Archipelago and flew in the Solomons, Leyte, Luzon, Western Pacific, China and Japan air campaigns. *Clockwise from top, left:* Fifth Air Force North American B-25 Mitchells patrol the China coast; the New Guinea coast at Salamaua is peppered by Fifth Air Force bombs; inland in two pictures, a Japanese anti-aircraft gun emplacement at Wewak and Japanese fighters at Butai sit beneath Fifth Air Force "parafrags"—bombs slowed by parachutes so that the aircraft dropping them can escape their blasts; off Indochina, a low-swooping B-25 goes after a Japanese frigate; another B-25 unloads on an oil storage tank at Boela on Ceram in the Netherlands East Indies.

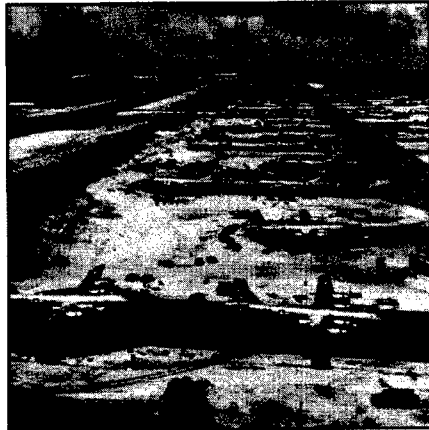
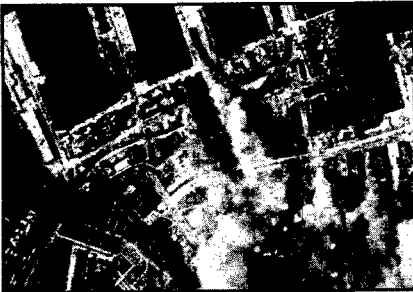
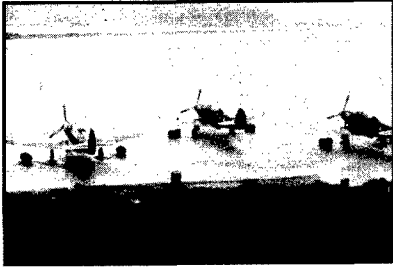
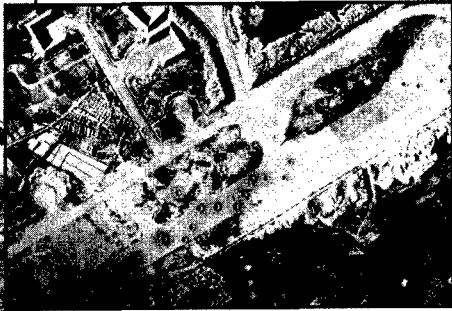
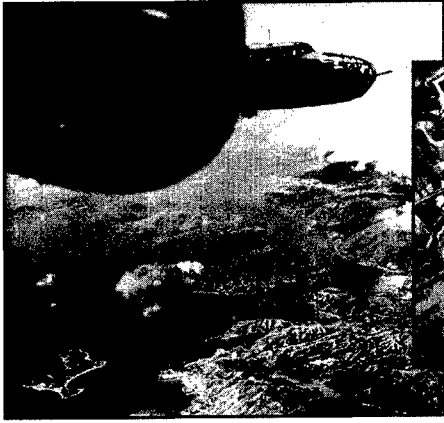


In the Central and Western Pacific, the Seventh Air Force aided the Eastern Mandates, Ryukyus, China, and Japan air campaigns. In the Southern and Southwestern Pacific, the Thirteenth Air Force aided the Allied drive from the Solomons to the Philippines and the Guadalcanal, New Guinea, Bismarck Archipelago, Eastern Mandates, Leyte, Luzon, and China air campaigns. Seventh Air Force *Clockwise from top, left:* Consolidated B-24 Liberators release their bombs over Japanese installations on Mindoro in the Philippines; in the Marshalls, enemy-held Jaluit Island bears the scars of Seventh Air Force poundings; so does a Japanese installation on Wotje Island; a bomber crew of the Seventh Air Force sends an encouraging message to a bomber crew of the Eighth; Thirteenth Air Force B-24s on Borneo head toward home base after hitting the major Japanese oil producing center at Balikpapan; the Donnang Bridge leading to that center lies split and smoking; a Japanese cruiser takes desperate evasive action in the Battle of the Sulu Sea off the Philippines before Thirteenth B-24s send it to the bottom.

The U.S. Army Air Forces in the Skies over Asia



When Japan isolated China by taking Burma in the spring of 1942, two American air forces became prominent in the struggle by the military commands of several nations against the aggressor. In the campaign to reclaim Burma, the Tenth Air Force aided British commandos behind enemy lines and, later, when the Japanese cut off the Burma Road, transported troops and supplies over the Himalayas from India to the Allies fighting in China. *Clockwise from top, left:* A Tenth Air Force Curtiss C-46 Commando, hauls critical materiel over the towering Himalayan Hump, from Assam in India to Kunming in China; Tenth transports prepare to move soldiers over the air route; others await their missions in the mud of airfields soaked by monsoon rains; in Burma, Tenth Consolidated B-24 Liberators blast a bridge on the Bilin River; others parachute supplies to Allied troops taking part of the rail corridor near Myitkyina; and a Tenth North American B-25 Mitchell takes off for a raid on Lashio.



The Fourteenth Air Force supported the Burma campaign and, as the American Volunteer Group, led resistance operations against Japan by the Chinese Nationalists even before the United States entered the war. Elsewhere, the Twentieth Air Force attacked the Japanese mainland with Boeing B-29 Superfortresses based on the hard-won Mariana islands of Tinian, Guam, and Saipan. In the harsh and treeless Aleutians, the Eleventh Air Force guarded against the enemy's northeasternmost reach. ***Clockwise from top, left:*** In China, Fourteenth Air Force B-25s leave smoking ruins of an enemy oil storage site at Laichikok, across from Hong Kong. An enemy-held airfield's runway at Kwansi bears a neatly cratered surface, thanks to Fourteenth B-24s. A Fourteenth fighter captures a Japanese ship in its gun camera before sinking it off Shantung. In the Northern Marianas, Twentieth Air Force B-29s crowd their base on Tinian, bound for raids on Japan. The port city of Kobe lies ablaze after a B-29 attack. Eleventh Air Force Bell P-39 Airacobras stand ready on watery, foggy Adak Airfield in the Aleutians.

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injuries and almost completely covered in flames, Irwin picked up the bomb, carried it to the co-pilot's window, and threw it out. His comrades finally beat out the flames and saved Irwin's life, but he paid a horrendous price for his bravery.

By midsummer, the Japanese war machine began to totter and crumble, but it wouldn't collapse. Then, on August 6th and 9th, two bombs exploded, one over Hiroshima, the other over Nagasaki. Less than a week later, on August 14th, over a thousand AAF planes paid Japan one last visit, just before President Truman announced that the Japanese government had agreed to surrender.

An agreement was formalized on September 2nd with the signing of the surrender document, and World War II was finally over.

Most numbers, such as the 10,300 Japanese aircraft destroyed against our 4,530 lost, half a million tons of bombs dropped and countless bullets expended, don't adequately convey the extent of the AAF's efforts against Japan. Only one statistic does that—the 15,694 airmen who died serving their country during the war in the Pacific. Their sacrifices helped ensure victory in that area.

This has been but a brief overview from afar of the Pacific air war. The gentlemen sitting on the panel today had a much closer, a much more personal view of that war, and I'd now like to turn the discussion over to them and to Dr. Hallion.

Dr. Hallion: We'll follow the same format that we did earlier, with ten-minute presentations by our distinguished speakers today. As I introduce them, you'll understand why I call them distinguished.

General Bernard Schriever originally held a reserve appointment in the field artillery, but he preferred to fly and so he became a pilot in the Army Air Corps in 1932. Just prior to the beginning of the Second World War, he became a test pilot and obtained two aeronautical engineering degrees, one from Wright Field, at the Air Corps Engineering School, and the other from Stanford University.

During the war, he flew sixty-three combat missions as a bomber pilot throughout the Southwest Pacific. He also rose in rank from captain to colonel and in position from pilot to Chief of Staff, Fifth Air Force. His decorations include the Distinguished Service Medal, with Oak Leaf Cluster, and the Purple Heart.

After the war, he became heavily involved in research and development. That's one of the great understatements. He was instrumental in developing manned aircraft, such as the B-58, and the ICBM [inter-continental ballistic missile] fleet: Atlas, Thor, Titan, and Minuteman. He headed Air Research and Development Command and its successor, Air Force Systems Command. At Systems Command, he also directed the Manned Orbiting Laboratory program. Since retiring in 1966, he's been a consultant on various space and missile programs.

The Air War in the Pacific

We're extremely fortunate to have with us today **Major General John Alison**. General Alison became an aviation cadet in 1936. Following the beginning of the Second World War, he was an assistant air attaché, with duty in London and Moscow. His later wartime service was quite varied. After serving as a ten-victory ace in China with the original Flying Tigers, he became Deputy Commander, 1st Air Commando Group, a member of the 308th Bomb Wing, and then Deputy Chief of Staff, Fifth Air Force. His wartime decorations include the Silver Star and the Purple Heart. Following the war, he was Assistant Secretary of Commerce for Aeronautics in the Truman administration and a vice president of Northrop for thirty-four years—ask him about the B-2. He's been president of the Air Force Association and is now associated with a company designing new, advanced, high-technology engines for aviation. There's a story I read recently—I think it was in Bob Scott's book, *The Day I Owned the Sky*—about some Chinese officials who were the guests of Claire Chennault at a demonstration flight of the P-40. Impressed by the one aircraft, they told Chennault that they needed a hundred. Chennault said, "No, what you need are a hundred Johnny Alisons."

Major General John Henebry, U.S. Air Force Reserve, retired, became an aviation cadet in 1940. He flew light bombers and fighters in the Southwest Pacific, leading the first low-level attacks on Wewak, Rabaul, and Hollandia. His 217 missions and 740 combat hours earned him, among other decorations, the Distinguished Service Cross and the Silver Star. Recalled to active duty during the Korean War, he commanded a troop carrier wing before rising to Deputy Commander, Combat Cargo Command, Far East Air Forces, and then Commander, 315th Air Division. General Henebry has served as president of the Air Force Association and is now in manufacturing.

Colonel Edwin Loberg, U.S. Air Force, retired, joined the Army Air Corps in October 1940. He was at Pearl Harbor on December 7, 1941. So we really have here the beginning and end of the war on our panel. As a member of the 11th Bomb Group, he flew ninety missions, many during the Battle of Midway and throughout the South Pacific. Later in the war, as 769th Bomb Squadron commander, he flew another forty missions in B-29s. His numerous decorations include two Silver Stars and the Distinguished Flying Cross. After retiring from the Air Force in 1968, he ran the Apollo Action Center for Boeing and the Skylab Management Center for Martin Marietta. Now that he's fully retired, if one can ever truly be fully retired, Colonel Loberg enjoys building and selling greenhouses in his spare time.

It's a great pleasure for me to introduce **Lieutenant Colonel Donald Lopez**, a fighter ace who spoke at this morning's ceremony. Don and I had the joy of working together at the Smithsonian when it was a decent museum. He entered the Army Air Forces in 1942 and,

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subsequently, saw action in China as a fighter pilot. He scored his first kill by ramming an Oscar. The P-40 held together; the Oscar didn't. Among the decorations he received was a Silver Star and the Distinguished Flying Cross, with Oak Leaf Cluster. After retiring from the Air Force in 1964, Don worked as a systems engineer in the Apollo and Skylab programs. Long associated with the National Air and Space Museum, he's been its Aeronautics Department chairman, its deputy director, and is presently its senior advisor emeritus. I strongly urge you to get hold of Don's most recent book, *Fighter Pilot's Heaven*, about his recollections of flying at Eglin Air Force Base right after the war. It's a truly remarkable book.

I'll direct my first question to Colonel Loberg, and that is, what did your experience at Pearl Harbor on December 7th leave you with in terms of an appreciation for air power and what influence might it have played in your subsequent role in the South Pacific?

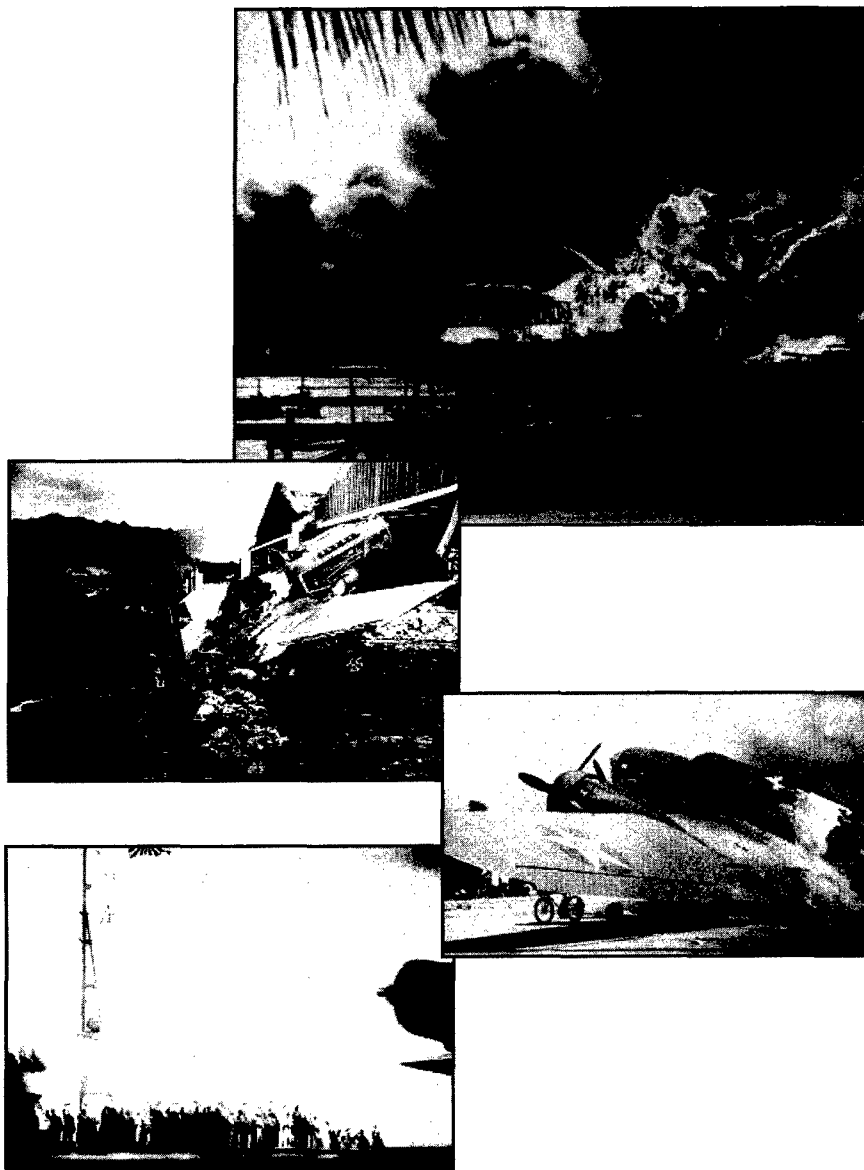
Col. Loberg: Well, December 7th certainly was "a day of infamy." I was up and dressed that morning, but lots of people weren't even out of bed when the attack began. I was the Officer of the Guard that morning and I was walking from my barracks tying my tie, getting ready to report to a major, who was the Officer of the Day, when I heard a funny noise over at Pearl Harbor. Then, three airplanes came down in front of me, just zipped down the street, heading toward the club, and I could see the big red balls. I knew they were Japanese. I knew we were at war, because I could hear the bombing. So I yelled into the barracks, "Get out, we're being attacked by the Japanese!"

The rest of the day was really kind of wild. I was a second lieutenant and, as the Officer of the Guard, I thought I had a duty to do something about the prisoners in the guard house. I took my car over there, strangely enough, and parked it on a baseball field nearby. I walked over to the Sergeant of the Guard and I told the prisoners that they could all get out if they wished. Then, we opened the door and I said, "If you want to go to the hospital, we're going to have injured people. You can go there." About half did. The other half stayed. A bomb hit the guard house a little later and knocked them all out.

We tried to save our airplanes. That was strange. We tried to taxi some that were hit. We got one engine started on an old B-18. There just weren't any B-17s capable of doing anything. We had only one that we could get ready to fly and that tried to take off. I think its controls locked and it didn't make it.

So, we didn't get any airplanes off Hickam Field that day. But we worked all night and got the B-18s ready to fly, loaded them with live bombs. There was a bit of a conflict in our minds. We'd never taken a B-18 or any airplane off and brought its bombs back. But we were told, "Don't you dare drop them if you're not going after the enemy."

Waking Up to War



As stunned survivors of the attack at Pearl Harbor on Sunday morning December 7, 1941, coped in the immediate aftermath of death and destruction, the United States formally entered World War II, vowing to hasten the buildup of its defenses and correct the vulnerabilities that Japan had so painfully exposed. **Top to bottom:** The destroyer USS *Shaw* explodes in drydock on Battleship Row. The Hawaiian Air Force as well as the Pacific Fleet took ferocious blows. A hangar and a Curtiss P-40 Warhawk outside it at Wheeler Field stand gutted by fire. A Boeing B-17 Flying Fortress lies sliced in half at Hickam Field. A Mitsubishi A6M Zero heads for an unsuspecting Oahu amid cheering carrier crew members.

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Bring them back. There's no way you can put the safety pins back in.' The next morning at five o'clock, we took off with three B-18s to look for the Japanese fleet. Of course, we were pretty lucky that we didn't find it. Flying at 120 miles an hour or so, we would've just been sitting ducks and wouldn't have done any good.

The whole day was a shambles. I could, I suppose, talk about a lot of people being injured and hospitals filling up. We didn't get any food for about twenty-four hours. Everything was a mess. Buildings were burned down, hangars were blown apart. Many of you probably saw the same things at other places. I saw the same things at other places, later on. That's basically my story of December 7th.

Dr. Hallion: What were some of your experiences beyond that, during your early days operating bombers in the South Pacific, say during the Battle of Midway? They must've been pretty interesting.

Col. Loberg: As I said, we started flying B-18s. How many of you know what a B-18 is? That's quite a group. In about two weeks, we got, I think, eight or nine B-17s from the States. Our squadron commander brought them in. Dick Cobb—maybe some of you knew him—brought them in, and we moved up to Wheeler Field and started flying search missions.

I was a brand new second lieutenant from the spring of 1941, and I was flying as a co-pilot. One day the commander looked around at the group, and he said, "Check this guy out." So I was taken out. I climbed into the left seat of a B-17. A first lieutenant who'd flown it probably ten or fifteen hours watched me as I taxied out, took off, flew down over Pearl Harbor, came back, landed, and taxied around to take off again for another shot at it. He said, "You're checked out." So after about forty minutes of flight, I was checked out in a B-17 and flew a search mission the next morning, before daylight, with a brand new crew that I'd never seen. That was the kind of checkout we had. Crazy!

We flew many search missions. I really can't tell you how many. Of course, we didn't run into anything in the Hawaii area, but we did go to the Midway area. We flew out of Midway for about ten days with about twenty-one B-17s, mostly searching, sometimes dropping a few bombs. The Navy didn't give us any credit at all for being at Midway, but we were there.

Later, in the spring or summer of 1942, we moved down to the Solomons area, to a little base on an island called Efate, and then to another, bigger base on an island called Espiritu Santo. We bombed the Solomons area and the island of Guadalcanal, itself, when the Marines and the Army were trying to take it over.

The Japanese had started building Henderson Field before we took it over. I think I was in one of the first planes to land there. We

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called the little tower and asked, "Can we land on the base?" And we got the answer, "Sure, come on in and try it." It sure was rough, but it was the airfield.

We started flying from there, flew all over the Solomons area and in and out of Port Moresby, New Guinea. We flew B-17s in that part of the Pacific until the early spring of 1943. Then, B-24s and new crews were shipped out, and we had a completely new situation. The B-17s that were left were used for administrative purposes and a little bit of combat flying.

Then, after I moved into B-29s, I went to India and China and flew another forty missions. The B-29 was a great airplane. I had the opportunity to be a pathfinder on the first big mission over Japan, after Doolittle, of course, had flown over it two years before.

Our food problem was terrible out in the Pacific. I should mention that. There were times when we'd go two and three weeks without anything but some Australian bread and peanut butter. We never ran out of peanut butter. One time, we salvaged about ten dozen canned hams from a little trawler that had tipped over in the bay, and we ate the canned ham with Australian bread. We never ran out of coffee. We always had coffee. But we'd go for three weeks on peanut butter and bread; that's not good.

We heard that the European theater was number one and, of course, we certainly recognized it as such, not only for food, but for clothing, too. We couldn't even get new shoes to replace the ones that had rotted from our walking around in the mud. I remember going for about four or five months with only a pair of sandals that had been made by the natives.

Our airplanes were really in terrible shape after a while, and we didn't have that many left. We couldn't even get parts or replacement crews. However, things started to change in the winter of 1942 and early spring of 1943, when the B-24s moved in. That's my story.

Dr. Hallion: Thank you very much. We turn now from the bomber dimension to the fighter dimension and other interesting aspects of the war, with General Alison, who flew with the Flying Tigers. He had the experience of working at close hand with Claire Chennault, one of the legendary air leaders of the war. General Alison, I have two questions, one on your experiences with the Flying Tigers and the other on your later experiences with the Air Commandos.

First, how would you assess General Chennault as an air leader, as an individual who knew and understood the uses of air power? Second, how did your Air Commando operations foreshadow Air Force post-1945 special operations?

Maj. Gen. Alison: People often ask whether General Chennault was a genius. I say if someone with common sense and high profes-

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sional knowledge is a genius, then he certainly was one. He understood war and how to use aircraft in war, but he did some things that I didn't understand. I was just a lieutenant fighter pilot and had no time to study. Chennault had spent a great deal of time studying. He'd been at the Air Corps Tactical School at Maxwell Field and had essentially written the book.

One of the many important goals in war is to get there "firstest with the mostest." But another important goal is to know where the enemy is before he knows where you are.

Chennault set up a warning net in China. We didn't have radar; we had Chinese listening stations. Individuals would listen and then would report back in to the net by radio or by telephone and say, "Sound of many [troops] in such and such a quarter." Or, when they saw them, they'd tell us how many. But after a while, you learned how to interpret and you knew where the enemy was and you knew where he was going. So when he arrived, you were up above him. You had the high ground.

Also, Chennault understood equipment. He'd say, "The Japanese airplane is made for maneuverability. It has high rates of climb. It can just turn on a dime. You're flying a relatively unmaneuverable airplane, a heavy airplane. But it's very durable, and you have one great advantage. You have firepower." We had six .50-caliber machine guns on our airplanes that fired six hundred rounds per minute. The Japanese had very poor firepower on theirs. So he said, "Take advantage of that." He also said, "You can't maneuver with the Japanese," and he had a little ditty, "It's better to strike and run away and live to fly another day." Chennault was absolutely right. You couldn't maneuver with the Japanese.

Well, I'd practiced for about four years maneuvering dogfights, back in the States, fighting everything I could, and I thought I was the best in the world until I met my first Japanese pilot. I tell you, Japanese pilots could get behind you so quickly and hit you, hit you on a turn. I tried it a couple of times, and I got my share of lead, and then I knew General Chennault was right.

I don't know where he got it, but he seemed to have intuition, also. He knew what the enemy was going to do, and that gave us a tremendous advantage. As a result, the AVG and then the 23rd Fighter Group, which followed, had a tremendous victory ratio over the Japanese. We were scoring victories when they were hard to come by.

Now, on to the Air Commandos. Well, I got into the Air Commandos by accident. I'd been in China, then got sent back to the States. I had a small cadre to go to England, and I was really looking forward to that. I had my own fighter group; I was the group commander. I was training it. I was getting ready to go to England, when all of a sudden a wire came: "Report to me without delay." It was signed: "Arnold." I

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asked air force headquarters there in Los Angeles, who delivered the wire to me, "What does he want?" They said, "How in the world do we know?"

So I reported in and walked into General Arnold's office. I don't know how many of you have heard of Phil Cochran. He was an unusual fellow, but a wonderful guy. We'd gone through flying school together, had been in the 8th Group together, had roomed together. We were close, personal friends. Phil was sitting in General Arnold's office and I asked him what he was doing there. He replied, "I don't know. What are you doing here?" I replied, "Well, I guess we'll find out pretty soon."

Then Arnold came in. I'd never heard of General Orde Wingate, one of the truly charismatic characters of the war. He had a beard and he wore a pith helmet, which was kind of his signature. He was an expert in guerrilla warfare. He'd gone into Ethiopia and organized the Ethiopians to fight the Italians, with tremendous success. He'd been in Palestine and is still known as "the Father of the Israeli Army." He was Moshe Dayan's personal mentor. Wingate was an unusual but very skilled fighter. He didn't have much respect for superiors he thought were incompetent, and he thought most of his superiors were incompetent. As a matter of fact, he'd once attempted suicide by cutting his throat from ear to ear; he had a great big scar. I don't know whether he really intended to kill himself, but my flight surgeon told me that he really had intended to. Fortunately, he didn't.

General Arnold told Phil and me about a guerrilla fighter who'd become a favorite of Prime Minister Churchill. Churchill had taken him to the Quebec Conference, introduced him to President Roosevelt, and had told Roosevelt the sad story. Wingate had developed a theory of long-range penetration groups. He had four regiments that he'd infiltrated through the Japanese lines to attack what he called the "soft underbelly"—the logistics system of the Japanese behind the front. The regiments actually went through the jungle, using mules to carry what little equipment they had. Their artillery was British one-pounders. Because they moved in silence and mostly at night, the vets cut the mules' vocal chords so that they couldn't bray and give the regiments away to the Japanese.

Wingate had tremendous success, except when he got a man who was wounded and not ambulatory, and he had to leave him. He said, "You know, we leave him, we prop him up against a tree and put a rifle across his knees and a canteen, and we say, 'Goodbye, friend.'" He said, "I can't do that anymore. I've asked the RAF [Royal Air Force] for air assets to rescue my wounded." He told President Roosevelt, "The RAF doesn't have the equipment. I hope the United States air forces can do this for me."

President Roosevelt turned to General Marshall and said, "Do it," and Marshall turned to General Arnold and said, "Do it."

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The next thing we knew, Phil and I were in Arnold's office and he said, "Do it." Well, he didn't tell us exactly what he wanted done. He said, "Somebody's got to pull those wounded out, and it's got to be one of you guys."

I said, "Well, General, you don't need me. I've spent a year fighting in China. I'm a fighter pilot. You've just given me a group. I'm a group commander. I'm going to Europe, and I'm happy. If all you're going to give us are L-5s, and if you want us to lift the wounded out, you don't need me to do that."

Arnold thought a minute and he said, "I'll tell you what I really want. You know, this guy walks through and it takes him six weeks to get in position behind enemy lines, and when he gets there, a lot of his men are sick; he's lost some of them en route, and they're tired. We can move them and support them by air. I'll give you any resources that you need to do it. Now, which one of you wants to take it?"

We looked at each other and Phil said, "Well, can we both go?" So Arnold said, "Yeah. Alison, you're the senior, you're the commander." I said, "No, sir, I'm not the senior. Phil ranks me by two weeks." And he said, "Well, you'll be co-commander."

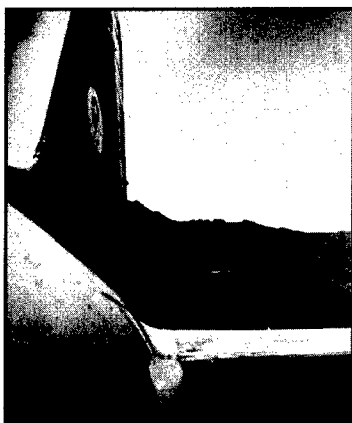
Well, anybody who's been in the military knows that co-commands just don't work. It wasn't that Phil and I couldn't get along, but nobody could understand what we were doing. So we went for about a month and I said, "Phil, you're the commander; I'm the deputy," and we got together an outfit.

We had C-47 tow planes. We had a hundred gliders, a hundred L-5s, thirty P-51s, and twelve B-25s. And this was our artillery support. We moved twelve thousand men in behind enemy lines. We flew gliders and landed with equipment, and we made air fields.

Because both Phil and I believed commanders ought to lead, Phil said, "Well, I'm going in." I said, "No, you're not, you're the commander; I'm going in." So I flew a glider. I'd never flown a glider in my life. I took off with fifteen fully-armed assault troops behind me at night and landed a hundred fifty miles behind enemy lines. I was lucky. I didn't break up. We had a lot of trouble as we landed in an open glade in the jungle. There were some ruts that we didn't see because they were covered with grass. When we hit the ruts, the wheels came off. The gliders went down. They were full of equipment; they were heavy; we couldn't move them. Other gliders behind kept crashing into the them. At night, it was terrible.

Also, we expected to be attacked. We picked two landing areas. We'd sent out a last-minute reconnaissance and found one field completely blocked by logs. We figured that the Japanese knew our plans. So we decided to go into the other one. Well, the Japanese really didn't know our plans. As a matter of fact, we were so deep in the jungle it took them three weeks to get in to find us.

Harrying the Japanese in Burma



The 1st Air Commandos were formed and led by Cols. Philip Cochran and John Alison for special duty to aid the British, who wanted to safeguard India by driving the Japanese from Burma. Although part of the Tenth Air Force, they were virtually autonomous as they hit Japanese targets and supported Maj. Gen. Orde Wingate's multinational guerrillas in incursions behind enemy lines. In March 1944, the 1st Air Commandos left Burma to fly supplies from India to China over the Hump. Their troop-carrying, supply, rescue, combat, and landing-strip building duties took them to jungles, mountains, swamps, and river valleys. *Clockwise from top, left:* A Douglas C-47 Skytrain towing a fragile troop glider; a wrecked glider, one of many that broke up in landings and storms; grizzled commandos emerging from the jungle near Broadway Field; a fortunately docile mule, bound for Wingate's raiders; 1st Air Commando aircraft sporting their distinctive stripes—a Republic P-47 Thunderbolt taking off on a mission and a North American B-24 Mitchell that has just bombed an enemy roadway at Wuntho.

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I didn't know this, although I'm sure British intelligence knew it, but as we were going over the mountains and rivers and landing behind enemy lines in Burma, the Japanese were just starting a major offensive against India. They almost took India, but one of the reasons they didn't was the commander of the Japanese army in Burma had two divisions in reserve that he couldn't deploy. He couldn't because we had one division behind them.

We fought a tough war. It was very interesting and it worked. General Arnold formed another Air Commando Group, and before I knew it, I was out of Burma and in the Pacific with it. I spent the rest of the time with my friends Ben Schriever and Jock Henebry out in New Guinea, the Philippines, Okinawa, and Japan.

Dr. Hallion: Thank you very much, General Alison. Our next question is for Don Lopez. Don, the Fourteenth Air Force seemed to have to do a great deal with very little. The whole logistical supply effort in the Fourteenth was a very tough one.

How did this fact impact on you in the fighter war? Fighter operations in the Fourteenth were very successful, in spite of many shortages, particularly of aircraft, and the condition of those you were operating. Also, how would you rate the capabilities of the Japanese pilots you were up against?

Lt. Col. Lopez: Well, everything was done on a very small scale. I was in the squadron that General Alison commanded. He'd left, but we knew all about him. He was already a legend when I arrived.

We had a very small-scale operation in China. A typical mission would involve just eight airplanes, all P-40s. Almost all of our missions—except when we were attacked and had to intercept or perform escort—were ground-attack type missions, and we carried bombs on every one. We flew to the north, mostly; the Japanese were up north of us in the Yangtze River area. We'd fly about 150 or 200 miles to the northernmost part of the target area and then attack coming back. Our first four fighters would go down, drop their bombs and strafe in whatever type of mission we flew—mostly against enemy transportation at the beginning.

The Japanese hadn't started their drive yet, and we attacked them as they moved in boats. They moved by horse a lot in China, but very rarely in trains or trucks. As I said, our first four airplanes would go down, drop their bombs, and strafe. When we were nearly out of ammunition, as best we could judge—we had no way of counting ammunition—the bottom flight would go up. The top flight would act as top cover, up about five or six thousand feet, watching out for enemy fighters. Then we'd switch places, expend our ammunition, and head back to our bases.

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Sometimes we had about twenty-four airplanes, *almost* the equivalent of a thousand-plane raid. "Tex" Hill, one of the original members of the AVG, was the first commander of my squadron and later came back as a commander of the 23rd Group. He came up and another squadron joined us, and we were going to run a mission.

You've seen in the film, *Twelve O'clock High*, when the Eighth Air Force was going to have a big thousand-plane raid, all of the maps and pointers and different people giving briefings. Well, our briefing consisted of Tex Hill getting up and saying, "Y'all follow me." That was the whole briefing; and we did; and it worked very well.

As for supplies, we were limited. Sometimes, we couldn't fly and we'd have to sit down because we didn't have fuel and spare parts. The airplanes coming over the Hump did a tremendous job. They lost, I believe, about three air crew members for every thousand tons they brought over, and they brought many thousands of tons. So they had a pretty tough job.

Because we were short of fuel we never could do any training or practice flying at all. We just didn't have the fuel to do it. So all of our fuel was used on actual missions or on engineering test flights and things like that. We had no training flights for the new pilots.

But, one thing we did have that was a pretty good innovation in India was a base called Landhi Field, outside Karachi. It was used as a fighter replacement training base for the China-Burma-India theater. New fighter pilots coming into the theater would report there first. They were trained by experienced fighter pilots finishing their tours and coming home from China or India, which was very good, because they got the very latest information from people who'd just been out there. I went to Landhi Field as a student, of course, and was an instructor there on my way back. It was a lot nicer when you were an instructor, I'll say that. There was a lot more food and other things for the instructors than for the students.

Food was a real problem, as Colonel Loberg has mentioned. We didn't even have peanut butter. We were fed entirely by the Chinese because food wasn't brought over the Hump, just ammunition, fuel, and other things that we needed. We were probably the only military people in the world who would've killed for Spam. We didn't even have that. We had bad pork almost every day, but it wasn't Chinese food as we know it in this country. It looked like it came from a pig thrown into a propeller. What we called "prop chops" were really weird cuts of bad-tasting meat.

One thing we did have though and I never could figure this out because I never saw a chicken and I never had any chicken to eat, but we had all the eggs in the world, four- or five-egg omelets. When our other food was bad, we'd just yell, "Egg us!" and the waiter would bring us omelets. So we'd eat, sometimes as many as fifteen eggs a day. For-

Harrying the Japanese in China



Among the Americans trying to oust the invading Japanese from China since 1937 was retired U.S. Army Air Corps flight training chief Col. Claire Chennault, advisor to Nationalist leader, Chiang Kai-Shek and, as a brigadier general, head of the Chinese Air Force. His AVG, the American Volunteer Group, fought in China and Burma. It was better known as "the Flying Tigers" because of the sharp teeth painted under the noses of its fighters. A small, feisty force of no more than 100 aircraft, the Flying Tigers were famous for successful exploits. Chennault was recalled to active duty with the USAAF in 1942 and led the new China Air Task Force. The Flying Tigers joined its 23rd Fighter Group. The task force under Maj. Gen. Chennault became the Fourteenth Air Force in 1944, controlling all air units in China and resupply flights over the Himalayan Hump. *Clockwise from above, left:* Nakajima Ki-43 Hayabusa Oscar fighters, the Flying Tigers' foes; a row of snarling P-40s under Chinese guard at Peishiyi; Flying Tigers leaping into action; the AVG base at Kunming, terminus of the Hump air route; two symbols of the Fourteenth Air Force, the Curtiss P-40 Warhawk and C-46 Commando.

The Air War in the Pacific

unately, that was before cholesterol was invented. One of our strangest missions involved food, getting it to Chinese troops surrounded in the north. Every year the Japanese would steal Chinese rice right after the harvest from where it was grown and take it all back home, or to wherever they were feeding their troops.

On the flight line I saw these weird-looking belly tanks on the airplane; we always carried a 75-gallon tank under the belly of a P-40. Our regular tanks were off and these weird-looking tanks made out of bamboo were on. Actually, the Chinese had fixed up a way to make them carry fuel. I don't know how they did it, but they cut the tanks' back ends off. I asked my flight commander, "What are they for?" He said, "The Chinese troops are surrounded. They're starving, and we've got to drop them some rice." So we filled up the belly tanks with rice, went up to Chang-te, came in low, and dropped them over the Chinese troops. It was one of those typical good news-bad news situations: The good news was, here comes dinner; the bad news was, it's coming at 250 miles an hour. I think it was cooked when it got to them.

We were in a very interesting theater and, as General Alison has said, we were all very respectful and thought a tremendous amount of General Chennault. He was a fine leader and we followed his tactics faithfully. They paid off very well. I didn't have any really close contact with him. He was a major general; I was a second lieutenant. So we didn't see much of each other. But he did come around and speak to us, and we were all trained by people he'd trained.

We flew P-40s almost until the end of the war. My squadron got Mustangs around the end of October 1944. With the Mustangs we had supply and other problems. The other problems had already been solved in Europe, but we didn't know it. We had the Mustang B and C models. They carried only four guns instead of six, and instead of sitting on the base as most fighters did, they were tilted, and because their wings were thin and they wouldn't fire under any G-load when you tried to shoot at another airplane. As soon as you pulled some Gs, all the guns would stop and you couldn't recharge them.

In Europe, the problem was discovered early and solved with small booster motors on the ammunition trays. We finally got the D models, which had six guns that were mounted normally, and they were fine. The Bs and Cs were okay for strafing, but they were no good for air fighting because you couldn't get a lead on anybody in any type of a turn and fire. It's very discouraging to pull your trigger and hear a "bang" instead of the sound of a machine gun; it's very sad. You can't recharge, so you're just a spectator from then on.

That was about it.

Dr. Hallion: Thank you very much, Don. One of the most interesting facts of the war was that land-based air attacks denied the

Reflections and Remembrances

Japanese the sea, particularly those attacks based on the very imaginative tactics developed within the Fifth Air Force to inflict medium bombs and light attack bombers on enemy shipping.

The 3rd Bomb Group, of course, as the 3rd Attack Group and the 3rd Pursuit Group goes all the way back to World War I in a very long and distinguished lineage. The 3rd Bomb Group really pioneered in the attack business.

General Henebry, your experiences are really quite remarkable, I think, in terms of the scope of the war that you saw, in terms of anti-shipping attacks in the New Guinea campaign and against Rabaul. What are your recollections of that and of the November 2, 1943, attack that so devastated the Japanese at Rabaul?

Maj. Gen. Henebry: My first experience in shipping was with the venerable B-18, out of Langley with the 2nd Squadron of the 22nd Bomb Group, early in 1941, when I was just out of flying school.

We were being re-equipped with the Martin B-26, and I'm sure you've heard about its short wings. Then, we had the Curtiss Electric props, which didn't work very well. We couldn't get but a few to work. We'd fly a B-26 down to Langley from Baltimore, take the props off, put them on a railroad car, send the B-26 back to Baltimore, send the props back to Baltimore, fly another B-26 down to Langley, take the props off, put them on a railroad car, send the B-26 back.

Almost four years later, I landed in Japan at Atsugi Airfield, above Yoko-hama, on the same day that General MacArthur went in, and I was flying a Douglas A-26 at the time. Dick Ellis, you'll recall, a former commander of SAC, and Chuck Howe and I were told to take the A-26s up there. So we did and we got out and looked across the airfield, and there were row upon row of Japanese airplanes with no propellers on them. I said, "My God, the problem the Japanese had was they were waiting for propellers from Curtiss Electric!"

We soon found out that one of the terms of the surrender agreement was that the Japanese were to remove all propellers from all airplanes because we were concerned about *kamikaze* pilots. So there we were. I'd made full circle. Started out the war with no propellers to ended the war with no propellers.

Well, the B-25 and the shipping and so on are pretty directly the responsibility of a guy by the name of George Kenney, who was an old-time, low-level attack guy, a pilot in World War I, who became our commander in the Pacific. He took over, as a matter of fact, the conglomeration of what we had over there at that time in about July 1942, and redesignated it the Fifth Air Force. He had a fellow working for him by the name of Ennis Whitehead who was really his operational guy. Whitehead commanded the Fifth Air Force Advanced. John wound up working for him a few years before the end of the war.

The Air War in Europe

The Japanese were running a lot of shipping in to resupply. They had some very fast destroyers, in addition to a few submarines and some other types, but their principal way of getting in was by destroyers. They were large destroyers, but they were very fast. The Japanese depended on night and weather to run them from the north coast of New Britain to the north coast of New Guinea or down to Guadalcanal and some other places over there. The destroyers were very difficult to hit. They'd be all alone, running at night. We were trying to go after them flying B-25s at medium altitude at that time, also B-17s. We were just getting some B-24s.

In daylight, those fast Japanese ships could see our airplanes. They could see our bombs coming down in good weather. And in good weather was the only time we could see them and they could turn away. We hardly ever got a hit at sea, on a ship at sea, which was able to maneuver away from a medium or high-level airplane.

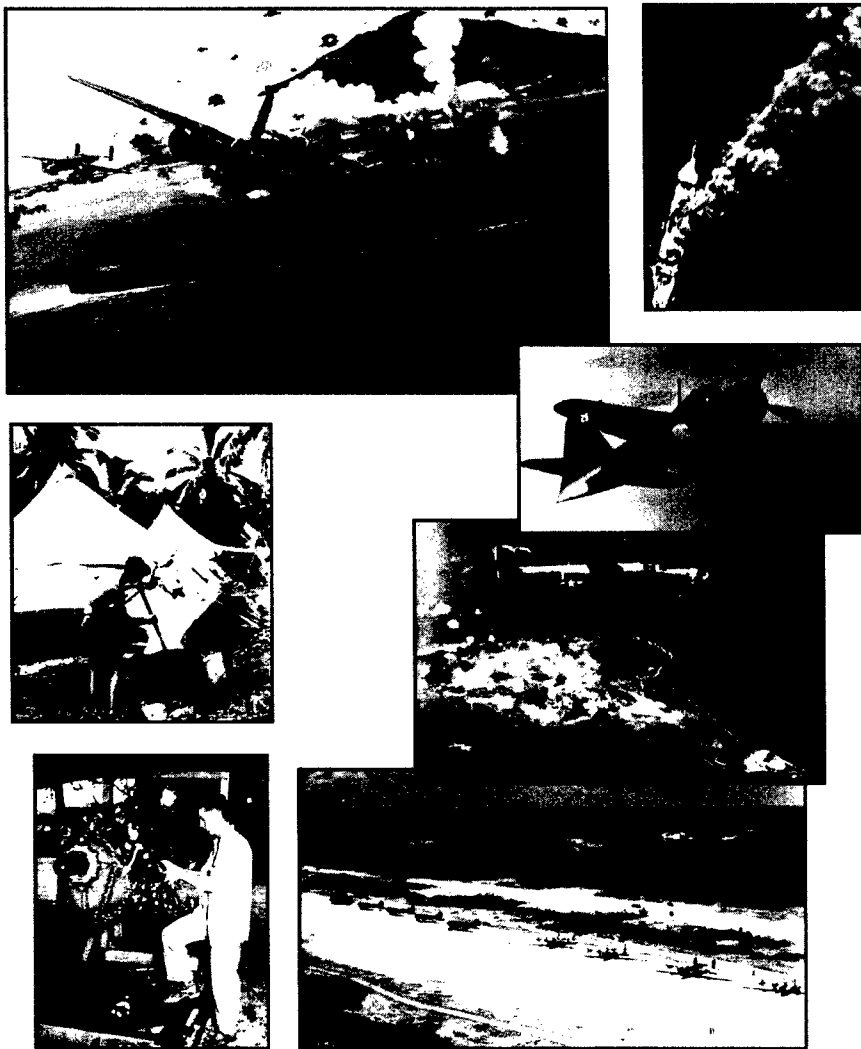
So General Kenney, being an old attack guy, got the idea to take out the bombardier—we had the A-20. We had a few old A-20s that the Third [Air Force] took over from Savannah, but they were running out of gas. They were coming apart. We lost a lot of them in combat, and there weren't any new ones coming over. Kenney resorted to the B-25 and took the bombardier out, put four .50-calibers in the nose and two on each side, so we had eight .50-calibers firing forward.

For minimum altitude operation and to reduce weight, he took the lower turret out of the B-25. We had an electric power turret in the back bottom of the B-25 that you could extend when you needed it. He took that out and kept the top turret. By golly, he propped that first one up. Pappy Gunn did all the engineering on the first ones. Ben Schriever got into them later on, up in Townsville. Didn't you convert some of them, Ben? But the first ones were converted down at Eagle Farms in Townsville when Pappy Gunn upset the Australian economy because he'd just write out purchase orders for all the brackets and stuff that he needed to get the guns mounted on the airplane. Our squadron finally got equipped. We got twelve B-25s in commission by the time of the Battle of the Bismarck Sea, March 3 and 4, 1943. We'd run a few missions before the battle, but just against coastal ships.

So when we brought up the first one that Pappy converted, the reaction was: "Yeah, well, that's fine. Go out and fly it. Go on out." We'd go strafe against "the Moresby Wreck," which was a freighter sitting on a reef right out of Port Moresby Harbor. We really had fun firing those eight .50-calibers against that perfect ship silhouette and dropping practice bombs and hitting into its side.

Finally, we had to stop the Japanese destroyers resupplying on the north coast. Well, we'd had fun up until then. But when we ran the Bismarck Sea campaign, as I said, we had twelve B-25s in commission. A [destroyer] leading the flotilla had come through the Vitiaz

Holding the Line in the Pacific



After American naval and air triumphs in the Coral Sea and at Midway in spring 1942, the Allies went on the offensive against Japanese southwestward expansion. To protect Australia, regain the Philippines, and obtain bases within B-29 range of Japan on Guam, Tinian, and Saipan, air, sea, and ground forces battled hard on islands made into virtual fortresses. In such places as the Solomons, Northern Marianas, Bismarck Archipelago, and New Guinea air power checked the enemy. **Clockwise from top, left:** The main Japanese air and naval base at Rabaul, New Britain, cut off and reduced by aerial bombing as shown in the painting, *Simpson Harbor* by Michael Hagel, of Fifth Air Force North American B-25 Mitchells attacking sheltering enemy ships; a Japanese resupply ship hit from the air in the Allied campaign on enemy convoys in the Bismarck Sea; the Mitsubishi A6M Zero fighter, a danger throughout Asia and the Pacific; a Seventh Air Force Consolidated B-24 Liberator striking tiny but significant Iwo Jima; B-24s and Douglas C-47 Skytrains on a strip carved out of the Carolines; airmen on "an island paradise," one repairing a precious Allison engine, the other boiling water.

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Strait at that time. Ed Larnier, commanding the 90th Squadron, said, "I want to take that destroyer myself. You fellows have to pick your own targets."

We watched him. He went right in broadside on that thing and he hit it pretty good with his 500-pound bomb. We had 500-pounders, with four-to-five-second delay fuses. He didn't sink it right then and there, but nobody ever sinks one instantly. Larnier made the run and we saw him make it.

A great phenomenon occurs when you get those eight .50-calibers on the deck of any ship, whether it be a man-of-war, or freighter, or whatever. As soon as you can get your guns on their decks, the lights go off. They stop blinking at you, and everybody gets scared to death. [The .50-calibers don't] penetrate all the armor on the battleship, but [they] sure [splatter] around a lot. That was our second big mission of the war.

Then, we took the lower turret out. We put four angle irons in the back of that B-25 and slipped a square, 300-gallon welded steel tank, which was made by another aid to the Australian economy, up into the bomb bay and mounted it on a bomb shackle. So we got about two hours and twenty-five minutes more of fuel than we did in a normal B-25. We'd burn that off first and then we'd drop the tank. We had spring-loaded doors with old screen door springs on them that closed when the tank dropped out.

We really surprised the Japanese with a strike at Wewak on August 17, 1943. They were in bad shape over there at that time. They were losing Guadalcanal. They weren't in trouble yet on Rabaul, but they'd lost Milne Bay. They'd gotten out of Buna. They'd been stopped from going through the Kokoda Pass, and they were very vulnerable at Salamaua and Lae. They had no way to supply the ground forces they had down there who were trying to get control of New Guinea or, at least, get out safely.

We found this out later. The Japanese Army Air Force sent a bunch of airplanes down to Wewak. They had four strips there: Wewak, But, Borum. I forget the name of the fourth [Dagua].

D.P. Hall was our group commander at the time. He got in there on the deck, completely by surprise, and ran a photo reconnaissance from about twenty-five thousand feet. I have the picture taken five minutes before we hit them. There were 176 Japanese airplanes lined up on three strips, wing tip to wing tip, and we blasted them. That really broke their back and we got some confirmation. Then, they had to move up to Hollandia, and we canceled that one out for them there.

Let me tell a little story. A friend of mine, Bill Rogers, from the 89th, lives in Little Rock, Arkansas. He's a professor of something or other. He and his wife had two Japanese girls come over to go to school at the University of Arkansas and live with them. The girls went

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through school, graduated, and went back to Japan. A couple of years after that, Bill and his wife got an invitation from one of the girls' families that she was getting married and they were invited to the wedding in Japan. So they went. There they met a retired Japanese fighter pilot. He wasn't in very good health, but he'd survived the war. They got to talking about the Wewak raid on August 17th. It so happens that this Japanese pilot was Officer of the Day on the Wewak strip the morning we hit them.

He said it wasn't only the strafing but General Kenney's little 23-pound "parafrog" bombs that just raised hell with them. He said those bombs really broke their backs and their morale. They'd wondered, "How are we going to ever beat these Yanks? There's no way we can possibly do it. They come up with more airplanes all the time." We ran for two days against them and nullified them.

That was one of the biggest and most memorable of the things you wanted me to talk about. I think our operational problems in the Southwest Pacific were due to lack of communications, lack of navigation, lack of weather reports, and inexperienced crews, and I include myself. But being commanded by the very imaginative and industrious General Kenney, who pulled all of those outfits together, and finally getting some equipment and the P-38 really did the job for us.

Dr. Hallion: Sir, thank you very much for that insight. We've come now, I think, full circle, back to bomber operations. General Schriever and General Henebry hinted at several unique aspects of the Pacific War and some of the difficulties operating it.

Sir, from your perspective, looking at bomber operations in the Pacific—they were quite different from those in Europe—can you explain how you coped with the problems of range and weather, how you coped with the kinds of aerial opposition you faced?

Gen. Schriever: First of all, the war was very different in the Pacific theater than in the European theater. We were definitely always number two. We had to scratch. We had to work very hard with the Australian economy to do many of the things that were discussed particularly well by both John Alison and Jock Henebry.

We've mentioned people like Pappy Gunn. We also had a colonel over there by the name of Gavin who was in engineering. He was the assistant for engineering at the Fifth Air Force level and we worked together as a team. I'd been with the 19th Bomb Group up in Mareeba. In June 1942, I arrived there. I'd been with the old 7th Bomb Group prior to that in the States, so I knew most of the people with it who'd come out of the Philippines. That was the old 7th Bomb Group. Then finally, both the 7th and 19th were chased out of Java. One half of it went to India and the other half went to Australia.

The Air War in the Pacific

I came over from Stanford University. I'm going to go back a little bit. I was at Stanford as a young captain, and the war started on December 7th, and I had one other AAF officer there by the name of Ralph Wassel. Both of us had gone through the old Air Corps Engineering School at Wright Field a year before.

I was the senior one there, and so I tried to get in touch with the Pentagon. "What are you going to do with us here? We've got a war going on and here we're going to school. What the hell is this?"

At any rate, we didn't get orders until March 1942. I was to go to the Southwest Pacific and report in to Melbourne, Australia, where the headquarters was. General MacArthur had just gotten out of the Philippines in April 1942, so he'd taken over the command there of the whole theater. I reported in and was assigned to the 19th Bomb Group. We were in Mareeba, just outside the city of Cairns, Australia, which is now a great fishing resort. It was just a little country town right at the foot of the Great Barrier Reef.

That's where I first met Jock, and his co-pilot, Dick Ellis. They arrived there, I think, in July or August 1942. So we've had a long, long relationship. We've heard a lot now of what happened on the operational side. I might point out that I think an answer to one of your questions is that there was great innovation in the Southwest Pacific.

I'd known George Kenney at Wright Field when I was a test pilot there in 1939 and 1940. There wasn't a more visionary person, except for Hap Arnold; I knew both of them extremely well.

Ennis Whitehead was a dynamic combat leader. He was under Arnold but he was the operating head of the Fifth Air Force. So we had the kind of leadership that required innovation on the part of everyone related to engineering, maintenance, and supply.

We had a theater, which as you've already described, covered tremendous territory. It was virgin territory to a large degree. As a matter of fact, much of New Guinea is still virgin territory. We flew over the jungles there and didn't know what was in the mountains. The war in the Pacific was a very, very different type of war.

Even after we moved into Hollandia and were running missions out of Biak, General Whitehead was commander of the Fifth Air Force at that time, stationed at Biak. I'd become what was called commander of the advanced echelon of the Far East Air Service Command.

I'd pick up the phone, and General Kenney would be on the other side: "Bennie, when is Whitehead going to get some fuel up there?" We often were planning missions on the basis of tankers coming in. We had the ability, particularly there in the shallow waters off Biak, to bring fuel in from the tankers themselves, and we made them available to the next mission coming up.

So we never had anything extra to move our operations forward in terms of logistics. When the 19th Bomb Group went home, I was

Leading and Innovating for Victory



World War II was arduous for air leaders in Asia who, while Europe had top priority in men and materiel, used charm, daring, skill, and drive to get the most from their resources. *Clockwise from top, left:* Facing danger and bearing losses, Lt. Col. Jimmy Doolittle stung Japan in April 1942 when he and his Tokyo Raiders, shown before taking off from the deck of the USS *Hornet* in North American B-25 Mitchells, bombed the home islands. Maj. Gen. Claire Chennault led the legendary Flying Tigers who, in a six-month period alone destroyed over 300 Japanese aircraft in China and Burma. Cols. John Alison, *left*, and Philip Cochran, *right*, led the 1st Air Commandos who fought with and supplied the British in Burma to halt the Japanese push into India. Lt. Gen. George Kenney, top Southwest Pacific air commander, worked well with General MacArthur, his boss, as few could, overhauled area operations under the Far East Air Forces, pioneered the use of parafrags and new bombing techniques, and encouraged initiative. One of his best airmen, Maj. Paul "Pappy" Gunn, *standing, far right*, improved several aircraft types, notably the B-25, by adding a package of six .50-caliber machine guns to increase its firepower in low-level attacks, as on the one shown.

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sent down to Brisbane to be chief of maintenance of the Fifth Air Force Service Command. I was just a major.

Kenney called me down and said, "Bennie, you're not going home. You've only been over here for six months. You haven't been over here long enough. I need all of the engineering and supply help I can get." Well, that was fine with me. So I didn't come home until after the war in October 1945.

Let me give you an example of my relationship with General Whitehead. At the time, I went down to Brisbane for that job. Although Brisbane was my headquarters, I'd spent most of my time up in New Guinea, I flew up there and was making the rounds of three or four fields. There was one flyable B-17, but it was badly shot up. I instructed the squadron commander to send it back to Townsville for repairs because we couldn't make them there in Moresby. Well, then Whitehead heard about this, and sent out an alert to get Schriever. He wanted to have lunch with me, although I hadn't met him before.

I went to the lunch, but it wasn't really a lunch, it was a "lynching." I sat there, and Whitehead just chewed me out from one end to the other and made it very clear that he was running things up there, and nobody had the right to order anything in the way of what an airplane would or wouldn't do. All I could say was, "Yes, sir. Yes, sir. No, sir. Yes, sir." I didn't get any help from any of the guys around the table. He had the whole staff there. So that was my first meeting with General Whitehead.

A few months later, when I met him again at Townsville, we were having trouble with P-40 engines. We were overhauling them in Australia and sending them back up to Moresby, and about three or four hours after we installed them, they'd fail. This happened to about five or six aircraft over a short period of time. Again, Whitehead was chewing me out unmercifully, "Hell, can't anybody do anything right down here in Australia?" He went on and on and again it was, "Yes, sir. No, sir. Yes, sir. No, sir."

So I sent some people up there to take a look at how the engines were actually taken out of the aircraft after their first failure. We found out that they were taken out and sent down to Australia, but the oil cooler wasn't being flushed. So as soon as the overhauled engine was put back into the aircraft, the filings in the oil cooler went through the engine. Of course, the bearings went after a short period of time.

I got some paperwork to prove it. The next time I saw Whitehead was in Brisbane when he came to visit the Fifth Air Force Service Command. Well, he started chewing me out again. This time I said, "General, look, I found out exactly where the problem is with the P-40." I outlined it to him and you know how he snuffed. He didn't say a word, but after that there wasn't anything I could do that wasn't just

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absolutely right. Whenever I came to his headquarters he always put me to his right, no matter what the ranks of the other guys were. By this time, I was a colonel. There were many guys who ranked the hell out of me, yet I'd sit by his right side.

Whitehead was wonderful guy and a wonderful leader. Kenney operated sort of differently. I can't explain it, but boy, he had terrific leadership qualities. He could get you motivated, no matter what the problem. Kenney never did it by chewing you out. He was more the "patter on the back or the butt," you know.

Maj. Gen. Henebry: Bennie, I hate to interrupt, but let me tell you a story about General Kenney. He loved to go and visit all of the officers, whether they were in New Guinea, no matter where they were. Kenney was a great talker. He'd talk, talk, talk. Sometimes, he'd come to our outfit and have some drinks, but never very many, and he smoked those Fatima cigarettes.

We were out flying and working all day. By around twelve o'clock or so we'd be getting tired, and he'd be sitting over there talking and talking. So we worked out a system — I remember — Carl Brandt and I, and a couple of others. One guy would quietly go out and take a little nap, and then come back in and sit down and let the other guy go out. And it didn't bother Kenney at all. He'd just sit there and keep telling his stories. We had a rotation system.

Gen. Schriever: Well, I can go you one better. When we moved my advanced echelon forward from Finschhafen to Hollandia, Kenney invited me to share his complex up there at headquarters. His staff included Red Hernel, Francis Gideon, and a couple of others. We'd designate one of us who'd sit up with Kenney until he went to bed and we rotated. I think he knew what we were doing, but it didn't make any difference to him, just so he had somebody to talk at, you know.

Maj. Gen. Alison: These were really wonderful characters. Both Whitehead and Kenney were tremendously talented men, and they made a great team. One of the great privileges of the war was serving under them. I served as General Whitehead's A-3, his operations officer. When I was given this assignment, my former unit held a mock funeral, because the average endurance of Whitehead's A-3s was six weeks. I laughed at six weeks and when I got beyond that, I got to know the old man very well.

Both Generals Kenney and Whitehead were just absolutely the top leaders of the war. If you wanted to fight a war, you were lucky if you had to fight with them, the European theater notwithstanding.

Gen. Schriever: I just want to say that the .50-caliber guns in

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the front of most of the B-25s weren't the only thing. For example, when I was in the 19th Bomb Group, we didn't have any fighter cover. We were flying B-17s during the day and were getting shot up pretty badly. I joined them at just about the time they'd decided we'd do nothing but night missions. But, how could we do that, except in moonlight? We didn't have any real capability, so we took out the bottom turret out of a B-17s and rigged up something inside with the help of the Cairns handy shops around. We put flares in with bungee cords and we flew one B-17 as a flare ship. Jack Dougherty and I were the flare ship operators. We had a few flights but they really worked and we continued to use flares. When we were flying our missions against Rabaul, they were really in support of the landing on Guadalcanal.

Maj. Gen. Henebry: It was a hot target then.

Gen. Schriever: Yes.

Maj. Gen. Henebry: May I tell you a story of General Kenney's inventiveness? He gets credit for it at least. The Australians and the American infantry, and some artillery were over on the north shore at a place called Buna-Gona. The Japanese were running in supplies there because they had the crazy idea of sending ground forces over the Owen Stanley range through the Kokoda Pass, which was over seven thousand feet. Now, this is a tropical jungle and even at seven thousand feet that close to the equator at night gets pretty cold.

Anyway, this terrible ground fighting was going on. It was just awful. We and the Australians both lost a lot of people. One of our problems was that we didn't have any ground transportation. We didn't even have a truck over there. Why didn't we get a truck over? Well, we're not going to send a ship all the way around Milne Bay and up the north coast up as far as Buna and risk losing it, just to carry a truck on it.

The biggest airplane we had was a C-47 and we were told that you can't get a truck in a C-47. But Kenney said, "Cut the sonofabitch in half and put it in." So we took torches and cut it in half. Then, we got a couple of C-47s, put the truck parts in it and took off. We landed on a grass strip, which later became Dobodura. We got the truck parts out of the C-47 and welded them back together.

That may have been done at other places, too, but then General Arnold made a remark to the newspapers back in Washington. When somebody asked him what he thought about his commander, George Kenney, out there in the Pacific. Arnold said, "Well, any guy who can cut a truck in half and fly it across the mountains and put it back together is okay."

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Gen. Schriever: Well, I did that when I moved my headquarters from Finschhafen. I landed up there on a road and we took a jeep. But we moved the truck the next day onto old Nichols Field, from Leyte to Nichols Field, when we set up headquarters there, right outside Manila, yes. While the war was still raging.

Col. Loberg: May I ask the general a question about the B-25s?

Gen. Schriever: Yes, please.

Col. Loberg: What did you do with the 75-millimeter gun on the B-25?

Maj. Gen. Henebry: We have to bring up Pappy again. Pappy deserves the credit for it.

Gen. Schriever: We'll give him credit for it.

Maj. Gen. Henebry: You know, I flew the first one, among other guys. They brought one over, and brought it up to us, and told us to try the thing out. It was kind of interesting to fire, but it wasn't a good weapon. It was very impractical. The biggest fault was, you couldn't load it fast enough.

I ran two missions with it after we tested it. It had an automatic loading system. Do you know what the automatic loading system was? The navigator in the back would load it. As soon as he heard you fire it, he'd get another shell and throw it in there and hit the pilot on the shoulder to signal that the gun was loaded again. That took quite a bit of time. I never got more than one round in on an air-strip. The other thing is, you had to fly it too high in order to sight it because it fired a lot farther.

Dr. Hallion: General Alison, the B-25s were also equipped with the 75-millimeter. What was your experience with it?

Maj. Gen. Alison: In the kind of war we were fighting, it came in very handy, simply because we had very discrete targets. When we attacked a supply point, it would usually be a village. We had air-to-ground communication and an RAF officer on the ground. He'd say, "Do you see the house with the red door? Put a round in that." We could fly down within five hundred feet. If he wanted one in the left-hand window, we could put it right in the left-hand window. It was a very accurate gun. But as Jock says, it was pretty hard to load.

Maj. Gen. Henebry: If you flew five hundred feet over, you got your ass shot off.

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Lt. Col. Lopez: In China, we had the 75-millimeter, too. The 11th Bomb Squadron was on a mission one day and a Japanese Zero made a head-on pass at a B-25, which fired its cannon. After the smoke, there was nothing left.

Maj. Gen. Alison: We never lost a B-25.

Dr. Hallion: We've had a wonderful afternoon. All of our panelists this morning, in the first session and in the second session, have commented on the leadership of the time and have praised that leadership as unique and extraordinarily valuable to the war effort. The same could be said of our panelists today, so I'd like you to give them a big hand. Before we conclude, I'd like to single out Jack Neufeld, who directs special projects for the Air Force History Support Office. He played a major role in putting this meeting together. I think we owe him a big hand, too. Ladies and gentlemen, thank you all very much.